NATIONAL PETROLEUM NEWS

Brake Still Set on New Development

High Gravity Crude Oil Price Advances Benefit Particularly Operators In Seminole District

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, July 28

TO SAY that the Mid-Continent industry was surprised by the advance in the price of crude oil on July 26 would not be overstating it at all.

The Carter Oil Co. very quietly and with no outward show of emotion, let it be known fairly early that morning it had decided light gravity oils were worth a little more money.

Before the day was out nearly all the big and little purchasers had met the advance. Magnolia thought it over for two days and swung into line, making its changes apply as of July 26.

Speculation was rife, as the literary folks say, as to why it was done and nobody is certain yet. It simmers down to this, however:

It is not enough of an advance to encourage new development or be interpreted as a "turning point" in the situation. It is enough of an advance to let some producers go on living.

Oklahoma crude oil will average around 38 in gravity and that would mean an advance of 12 cents per barrel. A large company with considerable Seminole oil in storage says it figures about that much increase in price on its stored oil—originally 39-40 gravity. Kansas production averages about a degree lower and its advance would be 10 cents.

This is average gravity and doesn't help the feelings of those who produce oil below 32 gravity. They took reductions of 2 to 14 cents per barrel.

President W. S. Farish, of the Humble Oil & Refining Co., said that crudes high in gasoline content are worth more since the gasoline market started its advance, but that fuel grades have declined in value. (See President Farish's full statement on an accompanying page.)

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Price Changes in Nutshell

(*For full details on price changes by all companies see page* 117, *this issue*)

July 26.—Oklahoma, Kansas and north Texas crude, above 33 gravities, advanced from 2 to 24 cents, and lower grades reduced from 2 to 14 cents (depending upon gravity differences posted by various companies), by Carter Oil Co., Prairie Oil & Gas Co., Magnolia Petroleum Co., Humble Oil & Refining Co., Sinclair Oil & Gas Co., and Gypsy Oil Co. The Texas Co. met on July 27.

Texas Panhandle light crude advanced up to 30 cents, with slight decreases on heavy oil by Humble Oil & Refining Co. Magnolia, Sinclair, Gulf met same day.

West Texas crude advanced 5 cents.

Salt Creek, same price schedule as Mid-Continent, but old Salt Creek gravity schedule applies.

July 27.—Wyoming, Montana, New Mexico crudes advanced 8 to 15 cents.

Central States advanced 5 to 10 cents.

July 30.—Somerset advanced 15 cents.

The New Price Schedule Necessitates An Adjustment of Wholesale And Retail Markets

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, July 28

REVISIONS in the crude market schedules in the Mid-Continent field on July 26 have brought about a condition in the refining and distributing branches of the business in the Middle West which will require a readjustment of both wholesale and retail prices.

Some changes have been made in refined oil quotations in tank car lots and it is expected that tank wagon schedules will be changed.

From the standpoint of the average refiner in the Mid-Continent field the change in crude prices amounted to an advance of approximately 12 cents per barrel. In a few isolated instances refiners are using crude of 32 gravity, which was not changed; but the vast majority are running 38 gravity crude on the average, which was advanced from $1.34 to $1.46 per barrel.

In view of the current overproduction of fuel oil in Texas it is apparent that this product will not be able to bear any part of the added cost of refining. It is unlikely also that gas oil can be made to help. The burden of meeting higher raw material costs will fall on gasoline.

Kerosene has been active in recent weeks, but at best this product yields only about eight per cent of the revenue derived from a barrel of oil when refined, while gasoline yields approximately 80 per cent.

On the basis of average yields at Oklahoma and Kansas refineries, the price of gasoline would have to advance approximately 0.579 cent per gallon to enable the refiner to maintain the margin he had before the crude advance. With U. S. Motor gasoline at 8.6 cents per gallon in Group 3 before the advance the new price would have to be 9.179 cents per gallon to wipe out the effect of the crude advance. Some refiners figure that

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Readjusting Markets

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they will have to get an advance of 0.75 cent per gallon on gasoline to break even.

The real rub in the situation is with the jobber in the marketing territory of the Standard Oil Co. of Indiana. With U. S. Motor gasoline at 8 cents per gallon July 1 in Oklahoma, the average margin available to jobbers at 30 cities in Standard of Indiana territory was only 3.728 cents per gallon, without giving weight to deductions on account of the Q. D. A.

At present the average tank wagon at these 30 cities with tax and freight from Group 3 deducted is 11.865 cents per gallon. On July 25 with gasoline selling at 8.6 cents in Oklahoma the margin to the jobber was only 3.265 cents per gallon before considering the Q. D. A. With gasoline advanced to 9 cents in Group 3 the jobber margin is reduced to 2.865 and the gasoline market is in such a strong position that an advance to around 9.25 cents per gallon by August 1 is possible. This would cut the jobber's margin down to 2.615 cents per gallon.

An advance of 1 cent per gallon in the tank wagon schedule in Indiana and adjacent territories would not put the average jobber on easy street. His margin on spot market purchases still would be only a little over 3.5 cents per gallon after giving effect to probable advances in the refinery market.

In the Mid-Continent field many refiners think the present situation gives leading marketers in the west a splendid opportunity to abolish the Q. D. A. One refiner with his own distributing division is known to have abolished the Q. D. A. as far as his customers are concerned and to have taken the step without losing gallonage.

In table No. 1 the writer has prepared a statement of average yields from a barrel of 38 gravity Mid-Continent crude at the average Oklahoma and Kansas refinery to show current margins available to the refiner. The table is based on actual yields of 40 plants in the two states with a crude capacity of 249 200 barrels per day. Yields were taken from weekly refinery reports gathered by NATIONAL PETROLEUM NEWS for the four weeks ended July 20.

Prices used in computing the yield in dollars per barrel were those prevailing in the Oklahoma spot market on July 25, the day before the advance in crude. Representative average costs were used. The costs given are somewhat higher than those of an efficient skimming plant but below those of the average plant which is cracking.

At 8.6 cents per gallon the gasoline yield of 20.74 gallons per barrel of crude showed a yield of $1.784, while all other products were bringing in only 42.6 cents per barrel of crude. On a spot market basis the average selling price of products would thus be $2.21 per barrel.

In connection with this figure it should be remembered that no consideration has been given to gasoline contracts which guarantee jobbers a margin of around 4 cents per gallon under the tank wagon. These contracts represent around 75 per cent of the gasoline produced at Mid-Continent refineries and will lower the actual net to refiners by a considerable amount.

Deducting average costs it is found that refiners selling on current spot markets before the crude advance had a gross profit margin of 32.5 cents per barrel. From this figure the refiner has to provide for depreciation and amortization of his equipment and pay taxes and interest on his investment. The crude advance cut this margin to 20.5 cents per barrel. To build the margin back up to 32.5 cents per barrel the refiner would have to obtain $2.33 for the refined products of a barrel of crude.

A representative small skimming plant operator told the writer that his margin before the crude advance was 10 cents per barrel without providing for depreciation, but after deducting overhead expense. The crude advance wiped out the margin and left him 2 cents a barrel in the red before gasoline advanced above 8.6 cents per gallon.

The gross profit margin available to the average refiner before the crude advance, while a modest figure, is far above that obtained in 1927, which was one of the most disastrous in the history of Mid-Continent refining. Current margins are about in line with the average for 1926.

Table 1—Statement of Yields at the Average Mid-Continent Refinery, Based on Weekly Reports of 40 Oklahoma and Kansas Refineries for the Four Weeks ending July 20. Prices are Those Prevailing on the Spot Market in Group 3, July 25.

Crude Charged 5,005,136 Bbls., or 210,342,000 Gals.
Natural Gasoline Blended ..... 7,728,000 Gals.

YIELDS

	Gallons	Per cent	Gal. per Bbl.	Price per Gal. cents	Realization Per Bbl.
Gasoline	*103,839,000	49.37	20.74	8.60	$1.784
Kerosene	18,312,000	8.71	3.66	5.00	.183
Stove Distillate	2,279,000	1.08	.45	2.875	.013
Gas Oil	12,841,000	6.10	2.56	2.50	.064
Fuel Oil	63,507,000	30.19	12.68	1.309	.166
Loss & Other Products	9,564,000	4.55	1.91	.....	.....
Total	210,342,000	100.00	42.00		$2.210

COSTS

	July 25	July 26
38 A. P. I. Crude at the Well	$1.34	$1.46
Pipe Line & Gathering Charge	.20	.20
Manufacturing Cost	.20	.20
Sales Expense	.05	.05
Tank Car Operating Cost	.05	.05
Natural Gasoline Blended	.045	.045
Total	$1.885	$2.005
Gross Margin before Depreciation Taxes and Interest	$0.325	$0.205

*After deducting 7,728,000 gallons of natural gasoline used in blending

Crude Price Advances

(*Continued from Page* 17)

In Oklahoma the outlook unquestionably is for higher production. The Little River area is about to burst into bloom and so are several other spots in that district including the St. Louis pool, with its two Wilcox sand wells making a total of 17,000 barrels daily and a large drilling campaign on.

At the moment oil is coming out of storage in Oklahoma and Kansas. The withdrawal is difficult to check up but is supposed to be in the neighborhood of 75,000 barrels daily. The question here is whether this price will stick if the situation turns the other way and oil again goes into storage say along in September or October.

An interpretation of the market change in its relation to the restriction of activity was made today by Ray M. Collins, who has for many months served as the umpire in the

Light Crude Worth More to the Refiner, Says Farish

HOUSTON, July 27

ADVANCES in the wholesale price of gasoline and declines in fuel oil markets were described by President W. S. Farish as the considerations bringing about the July 26 schedule of crude prices announced by the Humble Oil & Refining Co.

Mr. Farish's statement, which cautions for continued curtailment of production but stresses a fair price to the producer as a matter of vital concern, is as follows:

"In posting a new price schedule for crude oil we are actuated by the following considerations:

"The value of a barrel of light crude to the refiner has increased recently because of the advance in the wholesale price of gasoline. On the other hand, the value of heavy crude has declined with the decrease in the price of fuel oil.

"The heavy seasonal consumption of gasoline has brought about an increase in refinery crude runs which, in turn, has resulted in the production of fuel oil in excess of current consumption. Consequently, the value of light crude has not increased proportionately with the improvement in the wholesale price of gasoline.

"Wherever conservation efforts have been effectively applied they have reduced the cost of producing a barrel of crude by lessening the number of wells drilled and the expense of operation. Unfortunately, as yet, these economies have not become general and we believe that the average cost of producing crude oil over the past year has been greater than the amount received for the oil.

"That the potential present supply of crude is more than ample is fully realized by the industry, whose best interests will be further conserved by a further curtailment of production rather than through an increase.

"At the same time, the maintenance of a fair price to producers of crude is a matter of vital concern to everyone and we feel that present conditions, as hereinbefore set forth, justify an adjustment in crude prices.

"It is entirely possible that a further change may come at an early date, either through an increase in crude production and refinery runs or market demand, which will require another revision.

"Some economies have been effected in the cost of distribution and notwithstanding the advance in the wholesale price of gasoline there has been little, if any, increase in retail prices to the consumer.

"We believe that satisfactory conditions can be best established by:

"First, continuing the present practice of co-operative effort on the part of the industry and conservation officials to provide for the economic production of oil and to leave in the ground, its natural storage place, crude that is not needed for current consumption.

"Second, a policy on the part of the refiner that will produce for current consumption no excess supply of products. In other words, manufacture no more than the current demand requires.

"Third, a serious effort on the part of all distributors of petroleum products further to reduce the cost of distribution."

Seminole district, employed by the operators to assist in keeping development in line with market needs. He said;

"The producers in the Seminole area have restricted drilling and controlled production for more than a year in an effort to stabilize the industry and the recent raise in the price of crude is the first real benefit they have received. The new price is far below the intrinsic value of the oil as a whole and I believe that the producers are commencing to realize that, outside of a few areas, they are losing money and wasting their resources through depletion and depreciation to such an extent that bankruptcy will be the final outcome if they do not continue in their cooperative movement to control the situation.

"I have been asked whether I thought that it would be possible to continue a conservation plan such as restricting drilling and prorating of production if the price of crude went up. My answer is that the companies owning production and acreage in the flush pools of Oklahoma know that, if they do not cooperate in an effort to stabilize the industry, they will have another flood of oil this winter and lose all the benefits of their endeavors. Furthermore a letting down of their efforts to control the situation in one particular area would mean a throwing down of the bars in all fields, and then it would be impossible to even talk of 'stabilization.'

"Now that the producers are reaping some benefits from their cooperation I believe it will aid the conservation spirit and make it easier to get the producers to carry through on a general plan for coordinating and harmonizing the different interests of the country."

F. E. Hurley, Vice President Of Ohio Oil Co., Dies

CLEVELAND, July 31.—Francis E. Hurley, a vice president of the Ohio Oil Co., died at his home in Findlay, O., July 27. He was 51 years old and had been ill since the first of the year.

Mr. Hurley was born in Galloway, Pa., in 1877. After graduating from Franklin, Pa., high school he went to night school in that city and completed courses in telegraphy and stenography. He became connected with the Ohio Oil Co. May 1, 1895, in Montpelier, Ind., as stenographer and later secretary to J. C. Donnell, then the head of the company.

On Aug. 19, 1907, Mr. Hurley was elected secretary of the company, having previously studied law and been admitted to the bar. On May 23, 1912, he was elected a director and placed in charge of the Rocky Mountain division. In May, 1918, he was made a vice president.

Mr. Hurley married Georgia Abbott of Findlay in 1902. His widow and one son, Charles, survive him.

He was a member of the Rotary, Court and Findlay Country clubs, the Elks, and the Hancock County Bar association. At one time he was a member of the city sinking fund trustees and a member of the board of directors of the Y.M.C.A.

The funeral was held at the Hurley home in Findlay and burial was at Findlay. Rev. John D. Lindsey officiated. Pallbearers were O. D. Donnell, R. J. Berry, C. L. Fleming, E. B. Redpath, W. A. Miller, J. K. Kerr, E. G. Palmer and M. N. Poe.

John Edwards is President Of Wayco Oil Corp.

DETROIT, July 28.—Four changes in the executive staff of the Wayco Oil Corp. have been made since it was purchased by the Paragon Refining Co., Toledo, early this month.

John Edwards, vice-president of Paragon, becomes president of Wayco. He succeeds Edward F. Schlee, who is organizing the Schlee-Brock Airways.

C. J. Leroux, secretary-treasurer of Paragon, succeeds Earl Schlee as vice-president of Wayco. Earl Schlee is giving his time to the Triple Duty Boiler Co. of which he is president. Both Mr. Edwards and Mr. Leroux, retain their positions with Paragon. They are spending about half their time in Detroit.

Vernon T. Whitney, manager of Ohio bulk distribution for Paragon, is spending much time in Detroit developing dealer and resale agent trade for Wayco's gasoline and oil. Frank Robinson, formerly lubricating engineer with Wayco, succeeds Earl Schlee as manager of the lubricating oil department.

Two Schlee brothers remain with Wayco. Andrew G. is general manager and Dewey is general manager of stations.

Now It's *Transportation* By Oil

Some of the Things in Dealing with the Public that Twenty Years' Railroading Taught President Levy He is Now Successfully Applying to Gasoline Station Operation

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, July 28

BUSINESS promotion principles which E. D. Levy used in 20 years of railroad operation, he is adapting to the oil industry and using to rebuild the Pierce Petroleum Corp. marketing business in the southwest.

Mr. Levy has been president of the Pierce company three years. He is convinced that he still is selling transportation service, just as he was selling transportation when he was a vice-president of the Frisco railroad before he attempted to rehabilitate the Pierce properties.

The Pierce organization is the oldest marketing enterprise in the southwest and still is one of the leaders in gallonage in Missouri, Texas, Oklahoma, Arkansas and Louisiana.

Mr. Levy took the throttle of a decadent locomotive three years ago and by applying the principles he learned and fathered in the railroad business he has put new life into it. He is trying to supply the needs of the traveling public that now is riding on rubber just as he tried to serve the traveling public that had ridden on rails. Here are some of the ideas he is putting into practice:

1. Exploitation of the Ozark mountains of Missouri and Arkansas as the vacation center of the southwest.

2. Construction and operation of motor terminals with all facilities of modern railroad terminals.

3. Replacement of road maps with time table type road guides on a short trip basis.

4. Marking of all principal highways of the southwest with signs giving the mileage to and from important points.

5. Employing railroad roundhouse methods at service stations to speed up servicing of cars.

On a 5,000-mile motor trip which he took last summer Mr. Levy became disgusted with accommodations afforded tourists by oil companies which are bidding for transient business. In Pierce territory he has set about to provide clean, comfortable accommodations as an added attraction tc lure tourists into the year-around Ozark playground.

July 17 Pierce opened its first combination motor bus terminal, service station and restaurant at Springfield, Mo. A second project is being rushed to completion at Rollo, about halfway between Springfield and St. Louis on U. S. Highway 66, one of the main highways to the southwest and into the Ozarks.

The Springfield station is the first oil company enterprise of its kind as far as is known by the writer. It consists of a service station with the usual sales room, pumps and equipment connected by a canopy with the terminal. The terminal contains a large waiting room, ticket and express office, telegraph and telephone booths, rest rooms and a restaurant and soda fountain.

At the rear of the large, fully paved site is a combination grease and wash house of new design.

Each of the three structures on the lot is built in Spanish style with walls of warmly colored three-tone stucco above a rough brown stone base. Roofs are of green tile to match the colors in the Pierce Pennant trademark. Beams both inside and outside of the buildings are of worm eaten cypress, hand hewn and stained to indicate great age.

Doors are of hand hewn oak planks similarly stained. Arched mullioned windows add to the attractiveness of the buildings. An interesting touch added by the architect is a mosaic over the main entrance depicting a seventeenth century galleon.

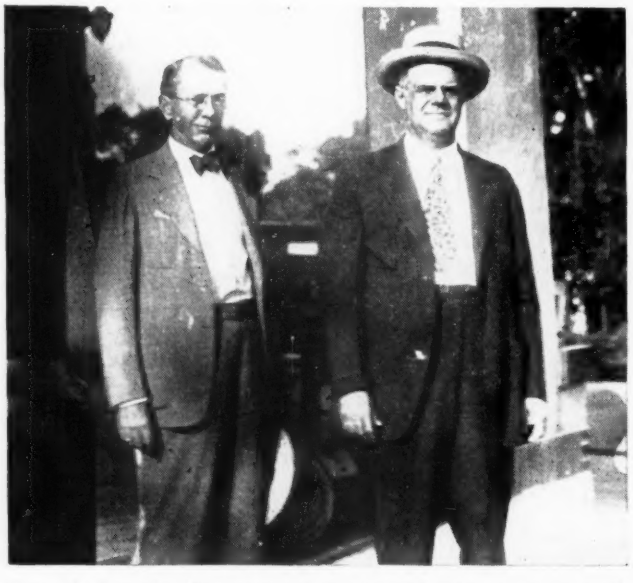
Within the waiting room, benches for bus passengers are cushioned with gayly colored pads with removable covers so that they may be washed. Walls are wainscoated with tile and decorated with textone reproductions of cattle brands of famous southwestern ranches. Rest rooms are walled with glistening white sani-onyx.

Springfield is on one of the Pickwick transcontinental bus lines and 14 other lines have buses running from the city in various directions. When the terminal is in full operation it is estimated that 84 buses will stop at the station every day.

A Pierce employe has charge of selling tickets for bus passengers out of Springfield and receiving express to be carried. For both of these services the company will receive a percentage of the gross receipts. In addition the company, of course, services the buses with oil and gasoline and on some lines cleans and greases the buses for the next run.

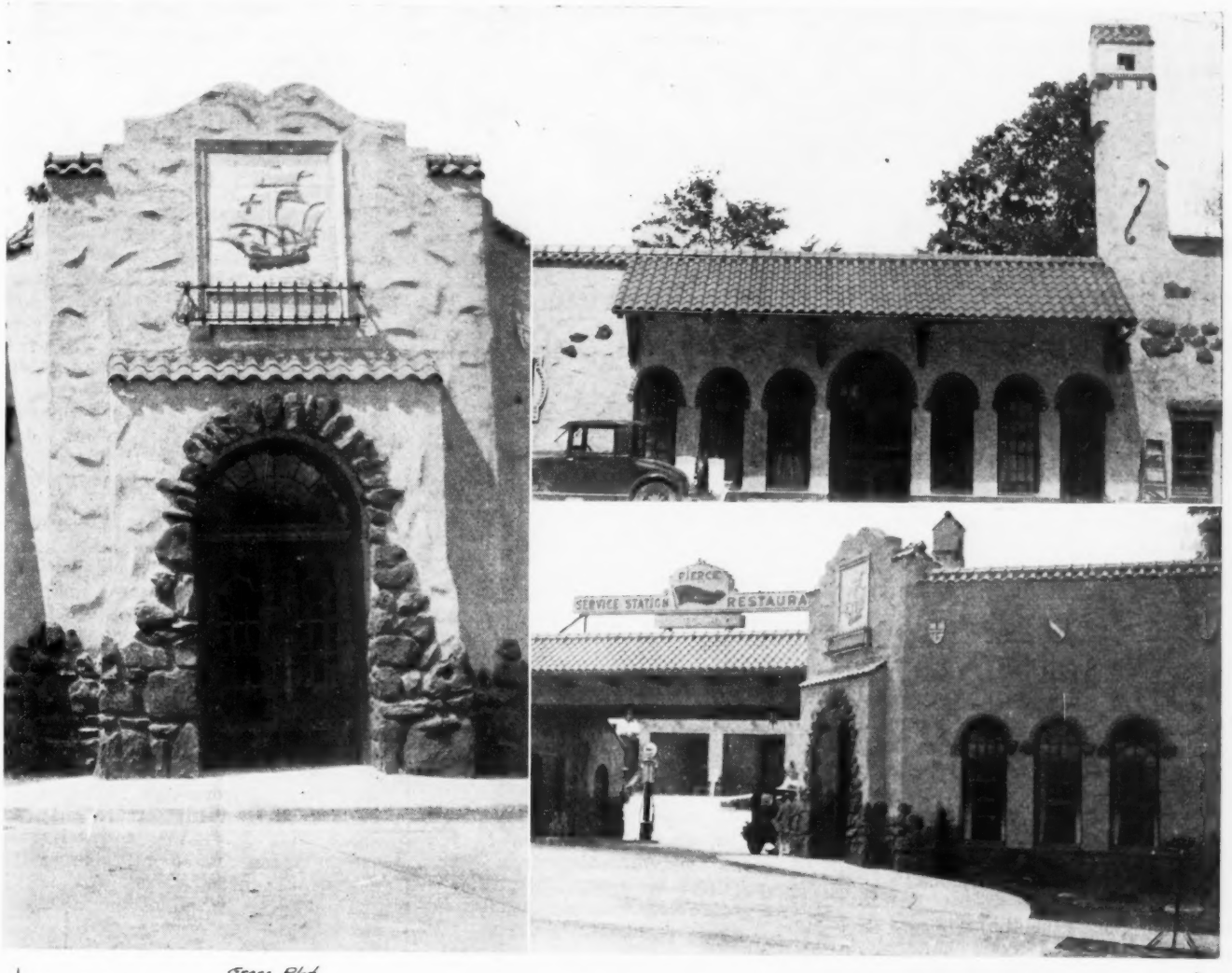
An important feature of the terminal is the restaurant which is under the supervision of R. W. Lochrie, who has been a dining car steward and manager of Fred Harvey railroad cafes for 20 years. The transcontinental bus line is making Springfield a control point with a stop for meals to take advantage of the restaurant service.

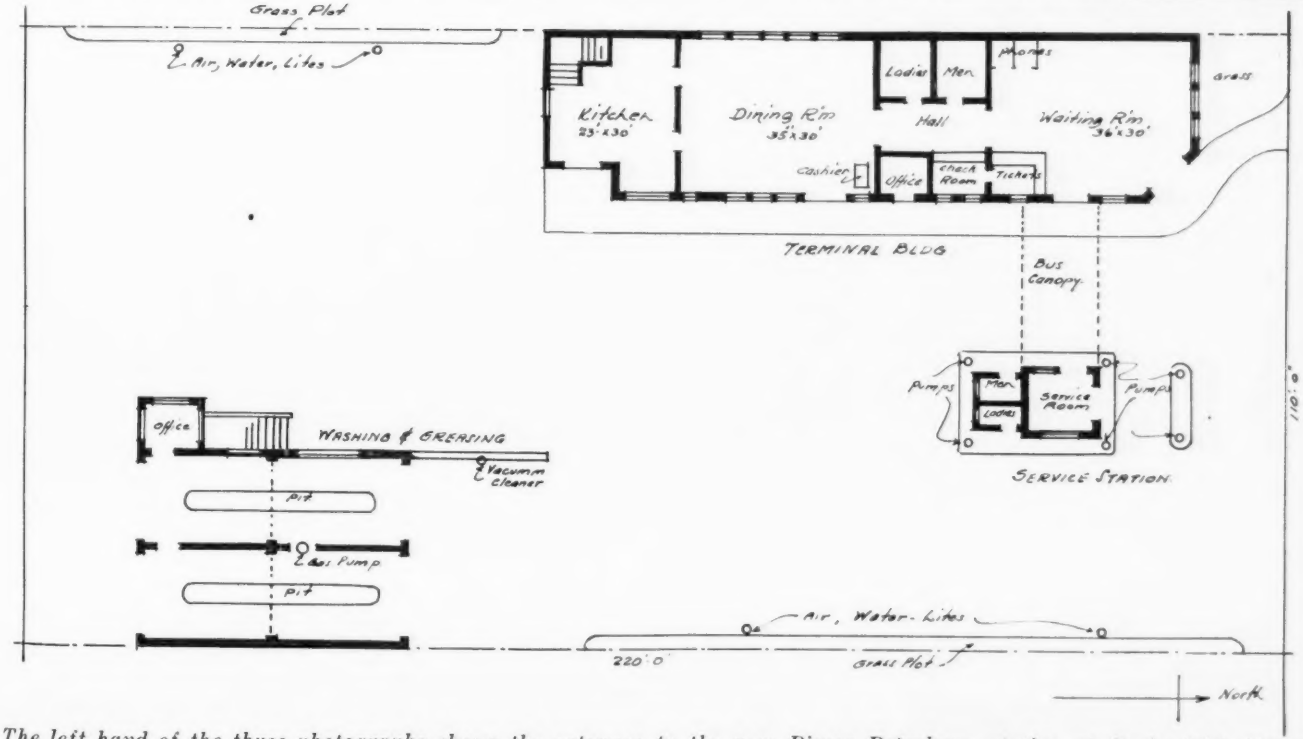
Indications are that the restaurant will be a profitable business itself. On the opening day 60 persons were served breakfast and



Harry L. Demming, left, manager of sales and assistant to the president, at a Pierce station with E. D. Levy, president of the Pierce Petroleum Corp.

Views and Layout of Pierce Petroleum's Combined Bus Terminal and Gasoline Station at Springfield, Mo.





The left hand of the three photographs shows the entrance to the new Pierce Petroleum station at Springfield. Upper right hand view is of the outside of the restaurant and waiting rooom; lower shows the connecting canopy between the main building and the gasoline station building. The diagram is the complete floor plan of the station.

100 lunch. The lunch customers ate 40 pounds of chicken along with other things. The cafe manager is to profit along with Pierce if his cafe is a success as an incentive for efficient operation.

The restaurant and soda fountain are to be kept open all night. A heavy evening business is expected since there is plenty of parking room behind the restaurant without blocking the service station or bus terminal drives.

New Pierce bus terminal, service station and restaurant at Rollo, Mo., half way between St. Louis and Springfield on Highway 66. N. P. N. Staff Photo

For the convenience of tourists the management is offering to care for mail and telegrams which may be expected. In the same way that railroads handle messages for passengers, the company will receive and forward telegrams or letters.

A negro porter, who has served for many years on the Frisco, has been employed at the bus station as red cap. He is giving bus passengers quite a thrill by calling the arrival and departure of buses for various points in the sonorous tones approved by all train callers.

The gallonage outlet for buses which will call at the terminal will be an important factor in the business to be done. The average fill of the large 26-passenger Pickwick buses is 40 gallons of gasoline while the smaller buses take around 20 gallons. The large buses have a crankcase capacity of five gallons of motor oil which is changed every 1,400 miles.

Between oil changes the operators find it necessary to add from 2 to 3 gallons of oil.

For speedy service of buses making short stops the company has installed a St. Louis continuous flow pump with two hose outlets so that fill pipes on both sides of the big buses can be used at the same time. The writer watched attendants at the Springfield terminal pump 46 gallons of gasoline into a bus in two minutes.

At the rear of the lot the grease house has been designed to handle the huge transcontinental buses as well as the usual run of smaller cars. The plant has been designed to make car servicing a continuous process with much greater speed than usual. The building consists of two runways each of which is divided into two compartments by a flexible metal curtain which may be raised or lowered like the ordinary fire curtain in many buildings. A greasing pit extends under the entire length of each side.

More About Pierce

HOW the Pierce Petroleum Corp. uses the radio to stimulate motor travel and gains favor among the people of the Ozarks by having local business men broadcast interesting facts about their communities from a St. Louis station, will be described in another article by J. C. Chatfield in NATIONAL PETROLEUM NEWS Aug. 8

Mr. Chatfield will also tell about the trip maps which Pierce supplies motorists. These maps are different from the usual road map. Read about them!

H. S. Turner, assistant manager of sales of the Pierce Petroleum Corp., A. D. Miller, manager of the St. Louis Division instructing one of the new Springfield station salesmen in the use of Pierce trip maps. N. P. N. Staff Photo

When a car is to be given complete service it is driven into one end of the building and the metal curtain is lowered. While oil is being drained from the crankcase the car is thoroughly washed. Next the metal curtain is raised and the car is moved into the second compartment. While excess water is being wiped from the car a vacuum cleaner goes over the upholstery and floor coverings and windows are polished. At the same time the chassis is being greased from the pit below and the crankcase is filled with oil.

A gasoline pump has been installed in this part of the building so that the fuel tank also may be filled at the same time. With this system a car may be thoroughly cleaned, greased, the oil changed and the gasoline tank filled within 15 minutes. The same type of service is given buses, the complete service being available while passengers are eating in the restaurant.

Greasing pits on both sides of the building are entered through the basement which contains the air compressors, a steam heating plant and oil storage. The pits are lined with white sani-onyx tile and equipped with flood lights to enable complete accurate work. Greasing is done under air pressure through lines strung in recesses in the walls.

The company is featuring the fact that tourists may stop for a meal at Springfield, use the excellent rest room facilities which are complete even to Kotex dispensors, and have a clean, completely serviced car ready at the door when the party wishes to start again.

In the Rollo station now under construction the company is following a similar policy of providing headquarters for tourists. It also is seeking to provide a focal point for short trip drivers out of St. Louis. Rollo is only a little more than 100 miles from St. Louis, a drive which can be made conveniently before dinner in the evening.

The Rollo terminal is a three-story building of colonial design. Back of the service station will be a large soda fountain room for the sale of ice cream, light lunches and drinks. On the second floor is a large airy restaurant with a dance floor.

A $1,500 electric Victrola is being installed for dance music. Over the service station is a porch equipped with easy chairs for sitting out

dances, viewing the scenery or merely resting. From this porch and from the restaurant windows the visitor may look for miles in any direction across the Ozark hills. The terminal is located about a mile from Rollo on the highest point in the vicinity.

There are dozens of chicken dinner roadhouses on highway 66 out of St. Louis now in operation but nothing that will compare with the Rollo terminal which is to be operated by a successful cafe operator of that city.

The Missouri state school of mines is located at Rollo and the thousand students there are expected to form an important part of the patronage. The restaurant is arranged so that it may be divided for private dinners of large touring parties, college fraternities, or other groups.

This terminal is similar to the Springfield plant in that it has large airy rest rooms of immaculate cleanliness and grease and oil pits for continuous quick service while motorists are resting or buying refreshments.

Filling Station License May be Invalid as Tax

CLEVELAND, July 30.—The Supreme court of Minnesota has upheld a refusal of a lower court to grant a temporary injunction against the enforcement of a recent Minneapolis ordinance under which gasoline and oil service stations are assessed a fee of $100 a year and $5 additional if the station has more than two gasoline pumps. The action was brought by the Crescent Oil Co. of Minneapolis through its attorneys, Hadlick & Hadlick, and Thomas Tallakson. Paul Hallick of the firm is secretary of the Minnesota Petroleum Association.

The court ruled that the city under its charter has the right to regulate service stations. On another question, "Whether the ordinance is valid as a proper regulation in the exercise of the police power or in effect a tax and is therefore invalid", the court said:

"The question can be determined upon injunction or upon a prosecution. If there is an effort upon the part of the city to compel 700 stations to pay the fee by burdening them with oppressive prosecutions before the legal right can be determined in an orderly way there is a remedy at hand."

This has been interpreted to mean that the court doubts whether the high fee is really a license and not a tax. Evidence now probably will be submitted to show that the ordinance is a taxing measure in disguise.

At another place the court said: "There are 700 filling stations in Minneapolis. The license fees bring a return of $70,000 annually. In 1927 the fee was $30 per annum. It was increased to $100 per annum in 1928. Such an exaction savors much of a tax. There was evidence at the hearing that the city gave no particular care to the stations."

The court upheld the high character of the service station business in these words: "Filling stations are a necessity in modern motor traffic. The keeping of an oil supply upon the premises of auto users would be an intolerable source of inconvenience and of danger. Filling stations are usually well kept. They are not resorts for objectionable people. They are not loafing places. They are not of the character of many lines of business which easily tend to become nuisances."

C. W. Anderson Appointed Sales Manager of Naturaline Co.

C. W. Anderson who has just been made sales manager of the Naturaline Co. of America

Staff Special
TULSA, July 28

C. W. ANDERSON has been appointed sales manager of the Naturaline Co. of America, according to an announcement made today by D. E. Buchanan, vice president. He is taking up his new position at once.

The Naturaline Co. recently was organized by the Chestnut & Smith Corp., Brooks & Hanlon, Inc., Smith Hanlon Inc., and the Hanlon Gasoline Co. The new company has taken over the production and sale of special natural gasoline by-products and Naturaline for export and aviation purposes.

The company has built a plant at Westwego to manufacture Naturaline for export in addition to the facilities at gasoline plants of the four parent companies.

Mr. Anderson resigned from the sales department of the Marland Refining Co. to take the new position. He has been with the Marland organization for the past five years, first in the advertising department then as assistant sales manager and recently as manager of the company's Tulsa offices. Prior to his service with Marland Mr. Anderson was with the Indian Territory Illuminating Oil Co. at Bartlesville.

The Naturaline Co. will take over the research work of the three gasoline companies affiliated with the Chestnut & Smith Corp. in addition to its sales activities. In this work the company will carry on the experimental work of the past three years which has resulted in natural gasoline being recognized throughout aviation circles as an excellent motor fuel when properly stabilized.

An indication of the recognition which the new product is being accorded is seen in the fact that the U. S. Bureau of Standards has begun an investigation of vapor pressures which are allowable for aviation gasolines.

The results of this investigation into aviation fuels is expected by natural gasoline companies to result in a revision of present government standards. Private research work has demonstrated that the new fuels give satisfactory service under extreme conditions of high altitudes and high as well as low atmospheric temperatures.

Much of the pioneering work on aviation natural gasolines has been done by the Chestnut & Smith interests. In addition to its research work the company has conducted an advertising campaign in the aviation journals to supplement its direct sales effort.

S. O. INDIANA ADVANCE

CHICAGO, July 31.—The Standard Oil Co. of Indiana will advance tank wagon and service station prices of gasoline and kerosene 1 cent throughout its territory on Aug. 1, it was announced today.

This is the first general advance on gasoline in that territory since May 17, 1926 when gasoline was raised 1 cent. Last previous change was a cut of 2 cents on May 10, 1927.

The last previous advance on kerosene was on Aug. 24, 1926 when it was raised 1 cent, and the last previous change was a cut of 1 cent on May 10, 1927.

Strangling Tank Steamer Fires Before They Get Under Way

FIRE on a tanker is so serious a matter that oil companies go to extreme lengths to prevent possibility of fires in their fleets of tank steamers. Standard of California engineers have perfected an ingenious device for preventing the formation of explosive mixtures in tanks which are being pumped out by filling the empty space in the tanks with flue gas and thereby excluding oxygen.

This system is described in a recent issue of the Standard Oil Bulletin as follows:

MILLIONS of barrels of highly inflammable petroleum products are each year transported by the tankship fleet of the Standard Oil Co. of California with the splendid record sustained of never a serious explosion or fire.

"In contrast to this really remarkable performance, other tankers have, during the past few years, suffered a number of very serious accidents, causing large property damage and loss of life.

"The records of all these unfortunate occurrences have been carefully studied to make sure that our operating rules provided for taking every practicable precaution to guard against any such accident occurring in company vessels. Out of these studies and the company's general fire protection and safety program, there has evolved a proposal for still further improving the safety precautions which have accounted for the fine record of the fleet to date.

"In brief, this proposal consists of a plan for practically eliminating the presence of oxygen in all cargo compartments. In the ordinary operation of a tanker, when oil is pumped out of the cargo compartments, air flows in through the vent to take its place. The mixture of remaining petroleum vapors and the oxygen in the air is liable to produce an explosive mass in the tanks.

"Now, it is well known that combustion of any kind cannot take place without the presence of oxygen. Hence, this explosion hazard could be entirely eliminated by filling the tanks with some gas which contained little or no oxygen.

"Fortunately, no special apparatus for the manufacture of such a gas is necessary on a steamship; for tremendous quantities of flue gas, from which the oxygen has been consumed by the boiler fires, are constantly passing up the stack.

"This is, of course, a waste product which, when properly cooled, makes an ideal inert gas for introduction into the vapor space of the cargo-tanks. The accompanying sketch shows diagrammatically the way this plan has been put into effect on the steamship 'H. M. Storey.'

"At first thought, this plan of using gases from the boiler-stack might appear to be anything but a safeguard for the ship; but if the drawing is examined closely, it will be noted that the first thing that happens to this mixture of gases when it is withdrawn from the stack is to pass through a cooler.

"The detailed illustration shows how thoroughly this device insures against any hot gas or incandescent particles of soot getting anywhere near the oil-tank. As the gases enter the washer from the stack, they first pass out under a series of 'bubble-caps' and rise through a pool of water in the bottom of the washer. Then as they continue up through the main chamber of the washer, they pass through a deluge discharged from the sprays which encircle this chamber at the top. In this way the gases, which come from the stack at a temperature of perhaps 400 or 500 degrees F. are cooled down to practically the temperature of the sea-water constantly circulated through the washer.

"With this safeguard always on the job, it is evident that there could be no possible chance of any danger from introducing stack gases into the cargo-tank. To insure that this safeguard will always be effective, the automatic valve shown on the drawing has been installed.

"If for any reason the gases coming from the washer should become too warm, they melt a fusible link and allow the automatic valve to close. As a still further safety feature, the automatic valve is also set so that it will close if the pressure on the water-line supplying the nozzles of the cooler drops below a certain point.

"The blower shown in the illustration is used only under special conditions. Ordinarily, as the oil is pumped out of the tank, the vacuum which tends to form in the cargo-tank pulls flue gas out of the stack through the washer and pipe-line into the tank being emptied.

"In this way, the entire cargo space of the vessel is filled with non-combustible flue gas each time the tanker is unloaded. As a result, throughout the entire return voyage the crew can have the comfortable feeling that they are riding on a ship whose cargo spaces could not be ignited even if someone deliberately plunged a flame into them.

"When filling the ship's tanks with oil, a further safety feature of this flue-gas system comes into play. When an ordinary tanker is loaded, the vapors that have to be expelled from the tanks to make room for the oil are simply pushed out of the vents, or 'ullage-holes,' onto the deck of the vessel.

"The presence of this inflammable vapor calls for extreme precautions throughout the loading period.

"The use of a flue-gas system provides a double safeguard against this hazard. In the first place, the mere fact that the tanks of a flue-gas-equipped ship are filled with a non-explosive mixture would greatly reduce the hazard, even if the tank vapors were discharged in the usual way—through the ullage-holes onto the deck. But these vapors are still inflammable when mixed with enough air, and are therefore best discharged at some point safe from possible sources of ignition.

"This further safeguard can also be obtained by making use of the flue-gas piping for venting the tanks. As indicated by the drawing, the main distributing line is connected into the base of the hollow mast. When loading starts, instead of opening the ullage-holes, as has previously been the practice, the valves to the flue-gas lines are opened and the tank vapors are pushed out through these lines. The check valve shown prevents any chance of the vapors being pushed back through the washer into the stack; and consequently they are forced out through the mast at a point so high above the deck that the chances of ignition are practically negligible.

"Thus in all of the phases of a tanker's normal operations—loading, carrying cargo, unloading, and running back in ballast—the flue-gas system tends to make a tanker about the safest kind of vessel afloat. But some of the worst accidents in the tankers of other companies have occurred, not in the course of normal operation, but under some special condition, as when tanks are being cleaned or repaired. Here again the flue-gas system can be called on for a large measure of protection. This is where the blower above referred to is needed.

"By operating this blower to pull flue gas out of the stack through the washer and force it through the distributing pipe-lines, flue gas can be circulated through the empty tanks of the vessel until all oil vapors have been displaced by flue gas; and then the usual 'wind-sails' can be used to displace the flue gas with fresh air. Thus the entire operation of freeing a tank of vapors so that it can be entered for cleaning or repairs can be carried out without at any time permitting explosive vapors to exist inside the tank.

Pressure Rejuvenation Successful In Powell And Stover Fields

By Paul Wagner
N. P. N. STAFF WRITER

Article 1

A second article describing installations of equipment used by Humble Oil & Refining Co., in its rejuvenation work in the Powell and Stover fields of Texas will be published in the Aug. 8 issue of NATIONAL PETROLEUM NEWS.

The accompanying article summarizes results obtained from rejuvenation in two different type areas. The practice differs from repressuring in that it retards decrease of reservoir pressure in an oil pay, whereas the other builds it up.

HOUSTON, July 26

INCREASED oil recoveries have resulted from rejuvenation work on three semi-depleted leases of the Humble Oil & Refining Co., in the Powell field of central east Texas; in the Stover field of Brown county, west central Texas, rejuvenation at the flush stage of production halted the normal decline of wells, thereby having the effect of increasing oil recoveries.

A comparison of the production decline of rejuvenated leases and non-rejuvenated properties in the Powell field shows the first mentioned to have declined only 7.3 per cent as against 13.3 per cent for the others. Similar comparisons are not available for the Stover field.

Rejuvenation differs from repressuring in that the first retards decrease of reservoir pressure in an oil pay, whereas the other builds it up. In rejuvenation practice the quantity of gas or air introduced into the pay horizon is less than the volume produced by the property; repressuring is just the opposite.

The dissimilar character of the oil accumulations in the Powell and Stover fields makes attempts to compare results of rejuvenation impracticable. Such dissimilar fields have in common, however, increased production of gas out of proportion to the amount induced into the pay and only slight variations in the gravity of the oil as between rejuvenated and non-rejuvenated areas.

Effects of rejuvenation on natural gasoline content have been found very hard to determine, due to changing conditions of casinghead gas, but it is believed safe to say the gasoline content does not drop more than 20 per cent and this is offset by the increase in gas volume.

Powell production comes from a faulted anticline in the Woodbine sand, backed up by a water table down the coastward dip of the central east Texas fracture zone. Although some gas is present in the pay horizon, the main influence on production prior to rejuvenation was hydrostatic pressure. Stover field, in the lenticular sand district bordering the general Ranger deep lime territory on the west, depends on gas for its flowing well pressure.

Conclusions drawn from the Humble's experience in the Powell field indicate the introduction of gas in a suitable key well retards the encroachment of water. On a fault structure such as that at Powell a line well may be safely placed on rejuvenation provided the outside company's offset is down structure.

Gas will not travel down structure because the water encroachment is from that direction. The natural tendency of gas is to travel to the highest point, provided the low point has similar reservoir pressure.

The gas induced into key wells spreads out fan-shape from two or three locations in the Powell-type fields, migrating directly toward the fault line with very little respect to contours of the sand between the well and the fault.

Although channeling takes place on the up-structure wells between the key well and the fault it has been found these wells are the best producers. Channeling, apparently, is not harmful in fields of this type. It has been noticed that the quantity of induced gas acts more or less directly on the production of both the oil and gas of the wells affected in this manner.

In a field of the Powell type it has been found impossible to control the direction of the input gas, as virtually all the wells are "pounding fluid," and they will not pump if the tubing is raised sufficiently to exert enough back pressure to prevent channeling.

Work in the Stover area has shown that the course followed by induced gas in fields of the west central Texas lenticular sand type may be more or less controlled by the raising of the fluid levels in the wells directly across the course, building up a fluid wall, exerting a back pressure and thereby forcing the gas along new channels.

Stover field operations have shown that in cases where a pressure of 350 pounds or more is necessary to induce gas into a well it is not profitable to use that well as a "key," due to the prohibitive cost of equipment.

Key wells selected in a more or less virgin area build up sufficient gas to create prohibitive pressures. It has been found also that rejuvenation is more successful in an area that has been already drilled than it is in a virgin, or mainly virgin, territory.

Greater success is attained when the gas is induced into a soft or porous sand than would be the case in a hard or firm sand. This is because the course of induced gas is toward the softest sand. If means are taken to stop the direction of travel, such as raising tubing or exerting back pressure, the gas then will spread to the drilling area in the immediate vicinity.

Experiments have shown that the quicker a well is placed on rejuvenation after being drilled the better the results to be obtained, as the sand surface is freer of foreign matter and gas may be more easily induced.

Efforts have been made to induce gas into key wells that showed prohibitive pressures, but methods such as use of clean-out string, shooting, steam, kerosene, gasoline and clean-out compounds have not proved successful. Wells that did not take gas at the start, when the sand surface was free from fluid, have not taken gas after trying such methods.

It has been found advisable to leave tubing in the key well, with bottom below the surface of the sand, in order to blow off fluid and clean the hole before starting induction. Wells have been placed on induction after the fluid was removed that did not take the gas before that time.

Tubing is left in the hole with the idea that in the future, in case of shut down or trouble, it would be possible to clear the hole of fluid without having to use swab or run tubing, thereby losing a large amount of gas induced in the sand.

The amount of gas induced into any key well is dependent upon its position structurally as well as its position in relation to offset wells and whether or not it is in a drilled or mainly virgin territory.

Increases in production on the various Stover field leases have been followed by proportionate increases in gas. The total oil/gas ratio for the field, however, has been climbing month by month.

New 6000-Foot Producing Sand Opened In Santa Fe Springs Field

By Wm. E. Green
N. P. N. STAFF WRITER

LOS ANGELES, July 28

THE long "feared" proving of a deep productive zone at the old Santa Fe Springs field in the Los Angeles Basin came about July 26.

Wilshire Oil Co.'s Buckbee No. 1 was completed at a reported depth of 5993 feet and is flowing approximately 100 barrels of 36 A.P.I. gravity oil an hour. It is on top of the structure.

The major companies hold most of the acreage in this field, although there are a number of smaller operators located on small leases. Every effort had been made for the past several months to discourage drilling a test to prove up a deeper zone thought to be present, as it was felt that additional light oil production would not be needed in California for some time to come.

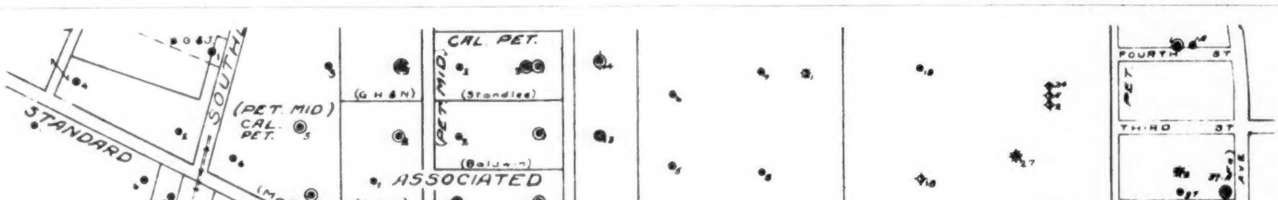
The accompanying map locates the deep zone well in almost the center of the townlot area. The well is designated with a heavy circle. Completion of the well has forced the issue and several locations have been made since. It is freely predicted that between 25 and 50 wells will be drilling for the deep zone within 90 days.

However, due to the fact that the zone is around 6000 feet deep and also that many old wells in the field are not in condition to be drilled deeper, the production that can be expected will not be felt for some months. It is possible that, by the end of the year, the Long Beach production will have declined sufficiently to make room for the extra production to come from the Santa Fe Springs deep zone.

Wilshire Oil Co. officials refused to give out any information on the progress of the well as drilled and, when completed, they continued their practice of absolute silence. All information is largely based on estimates. Scouts for the larger companies have literally camped at Santa Fe Springs for the past two weeks, watching the well by shifts, day and night.

The roar from the well can be heard several hundred yards. Storage tanks had been erected and gas traps placed prior to the production test. According to scouts on watch, the swab was run five times, July 26 about six p. m. and the well came in with a roar. The oil was cared for immediately and the first oil was removed the following day.

Wilshire's natural gasoline plant at Huntington Beach is being moved to Santa Fe Springs and arrangements made to add several new units to the old plant as it is being set up. Gas lines were connected up with the well at once and the gas is being cared



Map of Central part of Santa Fe Springs field in California, discovered by Union Oil Co. in 1919. First real production was registered in 1921. Wilshire Oil Co. completed producer from deep zone around 6000 feet July 26 almost in center of townlot production area, which will force the drilling of probably 200 wells in next 12 months. Large circle around the Wilshire deep zone well

for. No estimate could be secured as to amount of gas coming from the well.

Santa Fe Springs has been one of the most consistent producing fields in the state, with the well average holding from 122.5 barrels to 142.6 barrels per day during a two year period.

During January, 1926, a total of 346 wells were producing at an average rate of 142.6 barrels, while the average per well in June, this year, was 124 barrels. The following table gives the daily average production for the field, number of wells on production, and the daily well average in barrels, by months:

Date	Field Daily Av.	No. Wells Prod.	Daily Well Av.
Jan., 1926	49,351	346	142.6
June, 1926	48,491	352	137.7
Jan., 1927	44,692	346	129.1
June, 1927	42,006	334	125.7
Jan., 1928	38,730	316	122.5
June, 1928	37,213	300	124.0

Santa Fe Springs has a proven area of 1500 acres against 1105 acres at Long Beach. Long Beach to Jan. 1 last had produced a total of 260,200,000 barrels of oil against 169,000,000 barrels to the same date at Santa Fe Springs.

Santa Fe Springs has four oil sands. Top of the Foix is found at 3470 feet, with a thickness of 180 feet. Top of the Bell is found at 3650 feet, and it is 300 feet thick. The Meyer sand is topped at 4020 feet and extends to about 4850 feet. The new deeper zone has not yet been named and no one knows its thickness. Two-thirds of the field's producers are in the Meyer zone.

Most of the proven acreage at Santa Fe Springs is held by the major companies. A check of the field July 10 shows distribution of producing wells as follows:

Associated	24
General Petroleum	54
Texas Co. (Cal. Pet.)	22
Shell Co.	22
Standard Oil	70
Union Oil	31
Total Major Cos.	230
Other cos.	78
Total	308

The Wilshire Oil Co. owns the Ambassador Oil Co., which holds several small leases well scattered about the field. It now appears, if the deep sand underlies most of the field, Wilshire may be forced in the next six months to drill 40 to 50 wells.

WICHITA FALLS, July 28.—Work is being done at the former Miller Petroleum Co. refinery here to place the 2,500-barrel plant in shape for resumption of operations after having been closed down for more than a year. Reports here are that the present owners, the J. J. & M. Taxman Refining Co. are preparing to begin operation of the plant at an early date.

Texas Pacific Entry in N. A. T.

This Ryan monoplane, owned by the Texas Pacific Coal & Oil Co., Fort Worth, Tex., was the only Mahoney entry in the fourth national air tour, according to Texas Pacific officials of that company and of the Mahoney Aircraft Corp. The plane will be used by the Texas Pacific company in furthering sales of its —TP— aero motor oil, which is a wax free paraffin base oil, developed for specific summer and winter needs of aircraft motors. On the air tour, the ship was in charge of George B. Fredell, manager of aero oil sales for the company, and was piloted by Al Henley and V. N. Johns.

West Texas Stocks Are Mostly Winkler Crude

HOUSTON, July 26.

MORE than half the total storage stocks of west Texas sulfur crude July 1 consisted of oil produced in Winkler county. Stocks here were about 15,000,000 barrels of the total of 29,264,950 barrels accredited to the whole of the region.

Winkler crude stored in the county where produced totaled 6,307,620 barrels; at Ward county tank farms, adjacent to the Texas & Pacific railroad in the vicinity of Monahans, Wickett and Pyote, it totaled 3,279,200 barrels; at Midland, in Midland county, about 6,000,000 barrels.

Total storage of the Gulf, Atlantic and Magnolia companies at Midland was 6,278,050 barrels. This was made up mainly of Winkler crude belonging to the Atlantic and Magnolia companies but included working stocks of the Gulf Pipeline Co., consisting of Crane county crude.

In the Crane-Upton area, where the University (Church & Fields) pool caused the building up of storage for a time, total stocks reached 9,571,650 barrels, July 1.

Stocks of 1,909,500 barrels of Pecos crude in Val Verde county consisted of storage moved away from the Yates field by Illinois Pipeline Co., to its tank farm near the Southern Pacific railroad at Del Rio.

Pecos crude stored in the field totals only 230,000 barrels, reflecting the policy of operators to retain it in its natural below ground reservoirs. Reagan county stocks total 973,000 barrels; Mitchell county, 330,000 barrels; Crockett county, 9620 barrels; and Howard county, 376,230 barrels.

Storage gains July 1 amounted to 659,645 barrels over the total on hand June 1. In the 12-month period ended July 1 the gain for the entire territory totaled 25,520,034 barrels.

Most of the Winkler accumulation was made in the period immediately preceding the prorating order that became effective May 5, 1928. Since that time production has been restricted to 150,000 and 175,000 barrels daily under the original and the revised prorating orders. Pecos production, which has always been restricted to market outlets varying from 30,000 barrels to the present 65,000 barrels daily, never had a chance to accumulate except at the Del Rio tank farm of the Illinois Pipeline.

CLEVELAND, July 28.—The prone pressure method of artificial respiration is the one being taught to all oil company workers that are being given training in safety first, being generally regarded as the best method for resuscitating those who have been overcome by gas, shocked by electricity or partly drowned.

Refinery and oil field workers in many parts of the country are gladly taking advantage of the opportunity to learn methods of handling accident victims that may save lives.

Mission Pool Looked Upon as Probable Area of Sizable Production

Staff Special
TULSA, July 28

EVER since the original Seminole City pool reached high production figures, people have been predicting, as people will do on any subject whatsoever, that the area contained no more large pools. And, with the start of the decline in the Little River pool most of them were certain that the end had been reached.

Nevertheless, the operators are going ahead now on several "plays" in the district that promise to bring out large accretion to the state's production. With the south end of the Little River district nearly everyone is familiar. It has been heralded and discussed in as much detail, in these columns and elsewhere, as any part of the General Seminole district.

The industry remembers how operators, holding leases south of the original Little River pool and not thinking much of them as oil territory, banded themselves together to test the area as inexpensively as possible. They designated 10 locations for test wells which would give a comprehensive look at what was underground and the company drilling any one of these test wells was to be paid $10,000 by each of the offset owners if the test proved a failure.

This cooperative testing campaign led to the present rush of drilling in the pool thus revealed, where some 135 operations are under way. That this is certain to be a field of some consequence—probably what is termed a "major" one—is taken for granted.

Eight of the 10 test wells were large producers. What we may expect from this district will be shown within a short time for at the end of this week 36 of the wells had reached the depths where they standardize and complete.

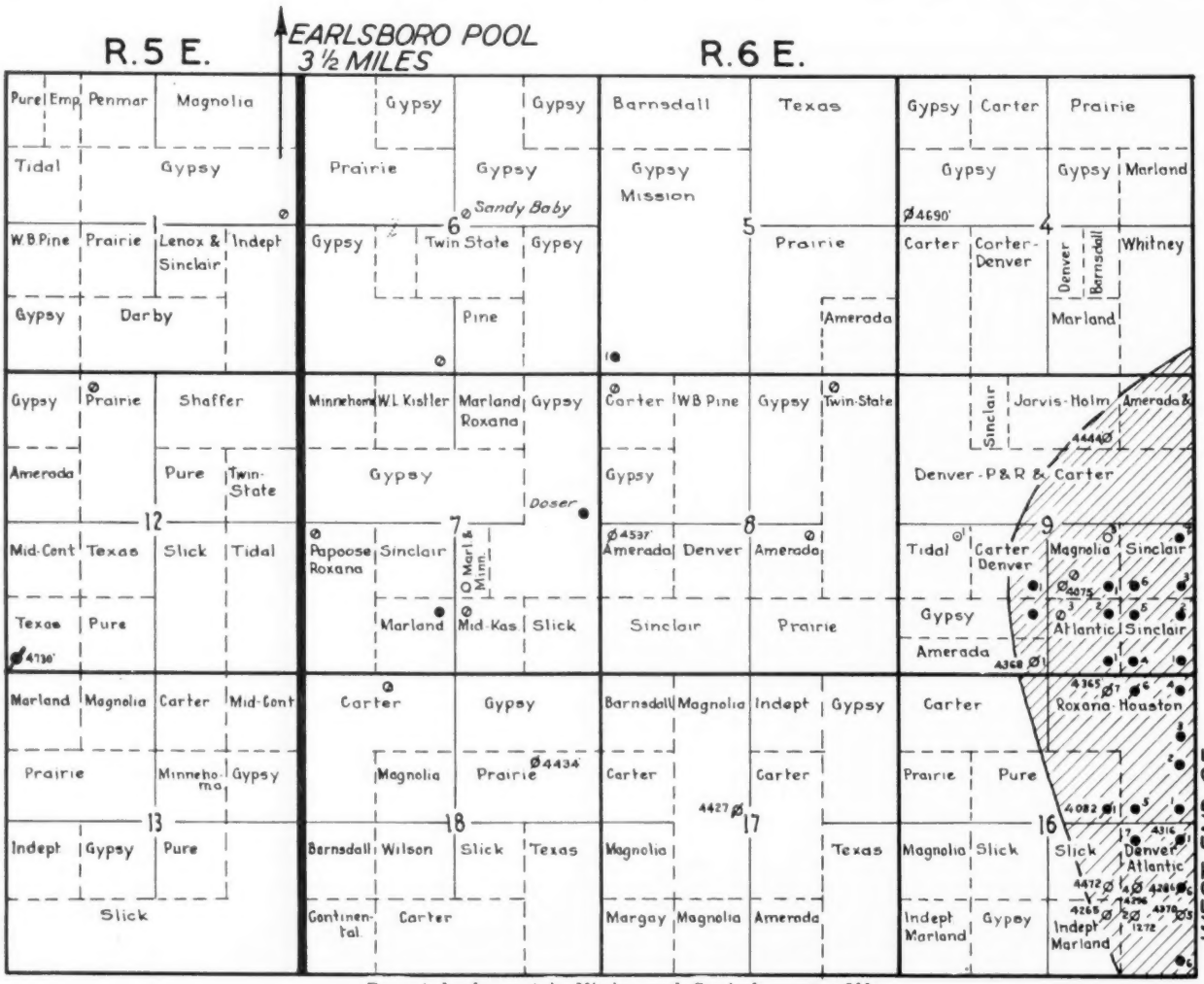
It is estimated that by Aug. 15, when by terms of the producers'

Bulletin
(By Telegraph)

TULSA, July 31.—The Gypsy Oil Co. No. 1 Mosar in the SE NE of section 1-8N-5E produced 790 barrels of oil in 10 hours on the swab yesterday.

Mechanical difficulties have prevented giving the production a full 12 or 24-hour test. The well flows vigorously in response to the swabbing but the gas pressure is not enough to make the well flow of its own accord.

The oil moves freely in the Wilcox sand from 4400 to 4405 and it is expected that the well will make a good producer when fully completed.



Present development in Mission pool, Seminole county, Okla.

agreement the field is to be opened to partial production, between 50 and 60 of the wells now under way will have been completed.

This field, as remarked before, is a known quantity. Another "play" not far distant which is assuming importance is that generally referred to as the Mission pool, from the Seminole Indian school on the tract where one of the two substantial wells which now constitute the pool is located.

The pool has been jockeyed along under wraps ever since the Gypsy Oil Co. drilled in its No. 1 Doser, months ago. This was a large well—in the neighborhood of 3,000 barrels—but wasn't touted so high as other discoveries because the Amerada Petroleum Corp. completed a dry hole offset to it. The two were drilled in at the same time.

The Gypsy not long ago drilled in its No. 1 Mission, just a half mile north of the discovery. The Mission well was a good one—it would make 2,500 barrels or better, but like the Doser it is restricted in production to 50 barrels per day.

The present agreement will hold back production in the area until the first well to be started after Aug. 15 comes in, although the Gypsy wells retain their discovery rights in the event an offset well is started.

Aside from the Gypsy wells, the first well to come in was the Marland Production Co.'s No. 1 Maines, in the NE SE SW of 7-8-6, more than a half mile from the Doser well. While it was a little higher on structure than was the Doser well, its production was not so imposing, although it is believed that it would make 1,000 barrels or better on gas lift.

The accompanying map shows present development in this area. Beginning with the first well in the area, the Doser, the records of several wells are as follows:

Gypsy's No. 1 Doser, SE SE NE of 7-8-6.

Elevation, 1,012 feet.

Top Sylvan shale minus 3,248 feet.

Top Wilcox sand minus 3,453 feet.

Gypsy's No. 1 Mission, SW corner of 5-8-6.

Elevation 1,030 feet.

Top Sylvan shale minus 3,016 feet.

Top Wilcox sand minus 3,297 feet.

Marland Production Co.'s No. 1 Maines, NE SE SW of 7-8-6.

Elevation 998 feet.

Top Wilcox sand minus 3,415 feet.

Gypsy Oil Co.'s No. 1 Sandy Baby, SW SW NE of 6-8-6.

Elevation 958 feet.

Top Sylvan shale, minus 3,305 feet.

Gypsy Oil Co.'s No. 1 Barkus, SE SE SW of 6-8-6.

Elevation, 986 feet.

Top Sylvan shale, minus 2,980 feet.

It will be noted that the Barkus well is the highest of any of them on the top of the Sylvan shale. Not always is this a reliable marker, as it has greater thickness in some places than in others, but is a fair indication and on the strength of it the Gypsy is on the point of establishing the third corner of a triangle formed by three producing wells.

The Gypsy's Sandy Baby well at the close of the week was drilling at 4,342 feet in Sylvan shale and the same company's Barkus well was also in Sylvan shale, at 4,085 feet. Twin State Oil Co.'s No. 1 Hays, in the NW NE NE of 8-8-6, three-fourths of a mile east of the Mission well, was in the Viola lime, total depth being 4,118 feet, but had dropped a string of 6-inch pipe and was fishing.

Another test, additional to the several shown on the map, which must be considered as part of this prospective pool, is the Gypsy's No. 1 Mosar, SE NE of 1-8-5, which at the close of the week was drilling at 4,358 feet in Simpson lime topped at 4,300 feet. It had 3,500 feet of oil in the hole. About three-fourths of a mile southwest, the Prairie Oil & Gas Co. is drilling a test in the NW NE NW of 12-8-5 which also forms part of this scattered out campaign. The Prairie test is a full mile from the failure drilled this year by The Texas Co.

Not a great deal will be heard from this area for a while, unless the faint rumblings now noted of a dissolution of restrictions should materialize into action. It is to be counted, however, as an important factor in the Seminole district future.

Tourist Route Station Owners: Here's A Profitable Tip

CLEVELAND, July 30

HERE'S a plea from a casual reader of NATIONAL PETROLEUM NEWS and a tip for the operators of service stations along tourist routes.

The letter was inspired by an article in the July 18 NATIONAL PETROLEUM NEWS, telling of the great effort of distributors to place a multitude of pumps along tourist routes but of the little effort made to get automobiles into their stations. With it was published a picture showing how one station owner told the public boldly that his place had a rest room for women.

The letter bears the signature of one A. W. Miller whom, we regret, we cannot identify. We will let Mr. Miller give you the tip in his deft style:

"Just been reading your article on 'Rivalry in Putting Out Pumps' which says there are too many pumps and not enough selling appeal.

"You don't know the half of it. Did you ever drive with a flock of kids? On my regular run from New York to Boston, where the folks live, I have finally marked out a sufficient number of comfort stations so that I can make hourly hops from one to another without any panics, tears, etc., in the rear seat. But it was a job, brother, and only the other day I got caught flat in Providence, not a station in reach (you never find 'em in cities) and only for stumbling on the Y. W. C. A. at the right moment, calamity would have befell.

"You gasoline men ought to realize that riding with three kids means reaching three comfort stations per two hours, or else. And when you have to stop anyway, what better chance to sell gas and whatnot?

"And yet, on the main stem to Boston—Federal Road No. 1, possibly the heaviest traveled stretch of its size in the country—I had my work cut out to find the combination of a clean comfort station and my favorite brand of gas every hour. And mine is one of the most popular brands.

"My idea for profits (and mental ease for driver-parents) is a sign 4 feet high, visible five miles in each direction, saying:

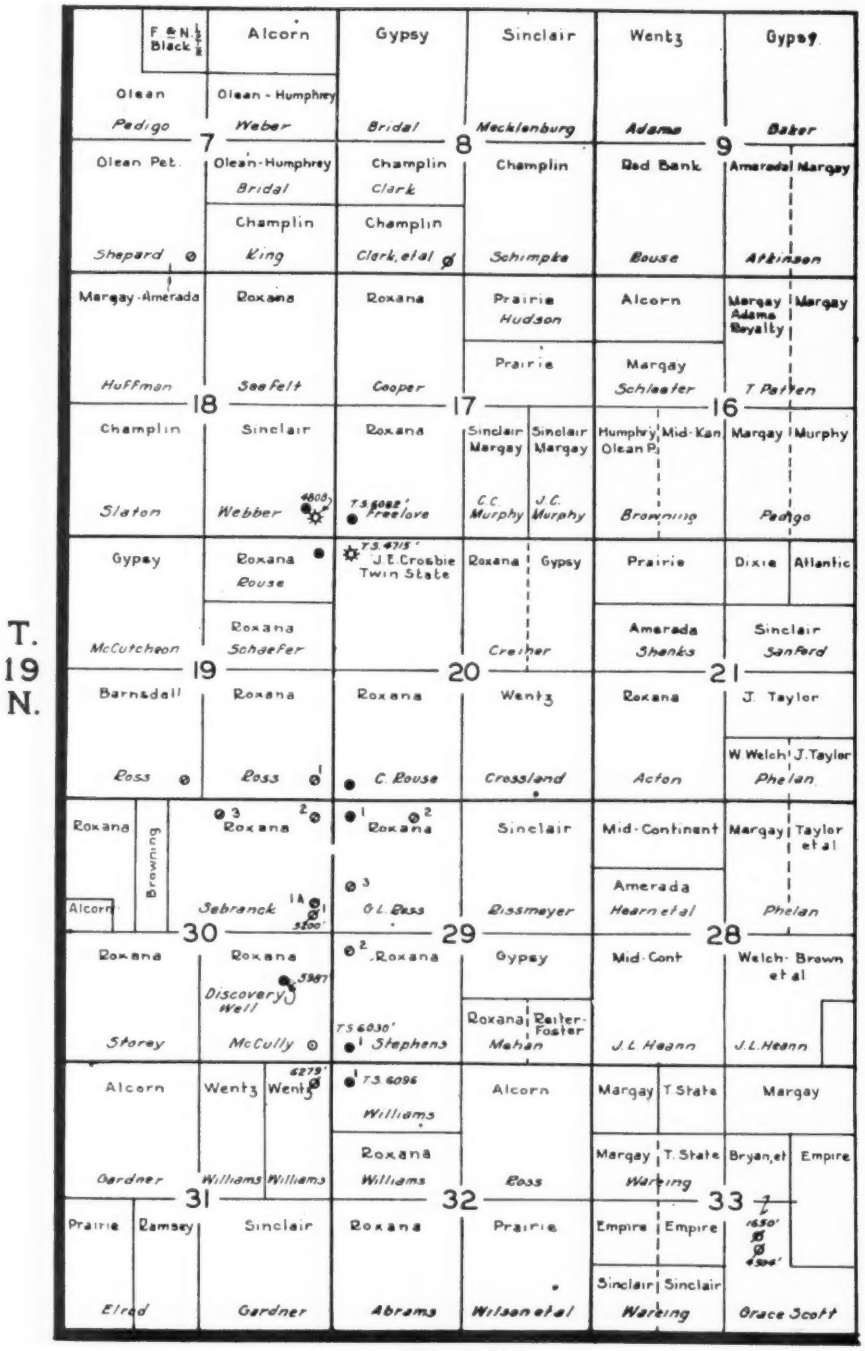
PAY TOILETS—LAST CHANCE

"Every railroad terminal station that I have seen in recent years has a flock of 10-cent pay toilets and they work overtime. People figure that they must be better (i. e., cleaner) because they cost money. Why shouldn't a low-margin business like a filling station cut out this free service, burn the old wooden house and put in some equipment which has a chance to make money. And then let the customers know it's there. And then make it worth a dime by keeping it clean and in working order.

"Maybe this comes under the head of 'What a Father Should Know' and shouldn't be mentioned in a polite magazine like the N. P. N.; maybe the customers would blush, get embarrassed and buy their gasoline somewhere else. May be. But I think people got over being embarrassed at the word toilet about the time the automobile got so it would run both ways—there, and back.

"I'm not a gasoline man or an equipment man or anything else connected with the oil industry except an ultimate consumer—with three kids.

"Please, Mr. Editor, get 'em started."



Roxana pool in northwest Logan county, Okla. This is 6,000-foot development

Coming Meetings

Illinois Petroleum Marketers Association, Soengataha Country Club, Galesburg, Ill., Aug. 16.

Ohio Petroleum Marketers Association, Commodore Perry Hotel, Toledo, O., Sept. 5, 6, 7.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 19, 20, 21.

North American Gasoline Tax Conference, Peabody Hotel, Memphis, Tenn., Oct. 1, 2, 3.

National Safety Council, Petroleum Section, Hotel Pennsylvania, New York City, Oct. 1 to 5.

Big Four State Jobbers, Kansas City, Mo., Oct. 3, 4, 5.

American Oil Men's Association, Hotel Statler, Detroit, Mich., Oct. 9, 10, 11.

International Petroleum Exposition, Tulsa, Oct. 20 to 29.

Petroleum Refiners Division National Association of Credit Men, Chicago, Nov. 4, 5, 6.

American Petroleum Institute, Stevens Hotel, Chicago, Dec. 4, 5, 6.

Michigan Jobbers Discuss Organization Work

DETROIT, July 28.—A collaborated effort in reconstructing the association was the theme of the business conference at the mid-year meeting of the Michigan Oil Men's Association here July 26 and 27. All addresses at the afternoon session on July 26 touched the subject.

Refinancing plans are under way with the advent of H. H. Ragle, who has been president for many years, into full time association work. Complete details are to be announced later.

On the morning of the first day there was registration with a luncheon at noon. Dr. Frank Kingdom, Lansing, was the opening speaker on "Doing It Together." President Ragle presented the association plans. P. L. Hassett, general manager of McKay, Hassett Oil Co., Flint, spoke on "The Best Insurance Known," and "What We Owe the Association" was the subject of Robert Warner, manager of the Cass City Oil & Gas Co., Cass City. Chas. A. Shierson, general manager of the Mutual Oil Co., Adrian, was the final speaker on "What Is the Future of the Jobber."

A cruise to Put-in-Bay consumed the second day of the conference. There was a baseball game and sight seeing tours of Perry's monument and the natural caves at the island. The banquet was on the boat on the return trip.

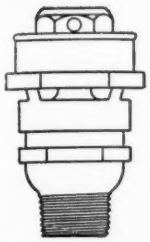
Approximately 100 attended the conference. The annual meeting and equipment exhibit will be in February.

Would Stop Rebating On Home Heating Oil

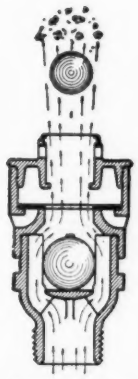
CLEVELAND, July 27.—The American Oil Burner Association at its executive and directors' meeting held at White Sulphur Springs, W. Va., July 9 and 10, adopted a resolution opposing acceptance by burner dealers of rebates paid by oil companies on furnace oil sold to the dealer's customers. It was stated that it is a growing practice among oil companies to pay such rebates.

A special committee was appointed to confer with the recently appointed committee of the American Petroleum Institute on drafting a marketing code to determine what further action might be necessary to eliminate this and other marketing abuses which may grow up between the two industries.

This committee consists of: E. M. Fleischmann, chairman; W. C. McTarnahan, Petroleum Heat & Power Co.; John S. Coonley Jr., Winslow Boiler & Engineering Co.; R. S. Bohn, Preferred Utilities Co., and Leod D. Becker and J. C. Johnson, ex officio.

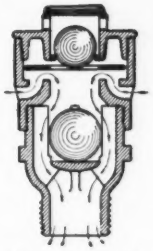


Outside View



In Case of Fire

Fusible metal top melts —large escape prevents tank from bursting.



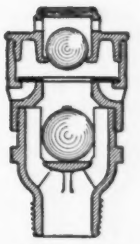
Admitting Air

Air is admitted through side vents while contents are being withdrawn.

The new Wheaton Vent Valve for Truck Tanks

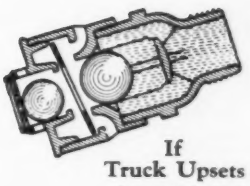
Relieving Pressure

Excess pressure is immediately relieved —upper ball rises and releases air.



Normal

Showing valve in normal condition—both intake and escape vents closed.



If Truck Upsets

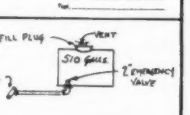
Bottom ball closes vent and prevents loss of gasoline.

NEW Vent Valve—*made by* WHEATON —proven MOST EFFICIENT of all!

98.8% Efficiency!

TESTS OF TRUCK TANK VENTS

350 GALLON TRUCK TANK COMPARTMENT EMPTIED THROUGH 8" PIPE 5'-0" LONG, EQUIPPED WITH 2" EMERGENCY VALVE AND WHEATON 2-26 FAUCET



VENT	CONDITIONS AND REMARKS	TIME MIN.	GALLS/MIN	EFFICIENCY %
NONE	6" FILL PLUG REMOVED	8.96	56.9	—
¾ PIPE	¾" NIPPLE USED FOR VENT	8.98	56.8	—
No 1	A TRIPLEX VENT ¾" PIPE THREADS	16.66	30.6	53.8
No 2	A DUPLEX " " " "	11.72	43.5	76.5
No 3	A " " " " "	11.08	46.0	80.8
No 4	A TRIPLEX " " " "	13.40	38.0	66.8
No 5	A " " " " "	15.20	33.5	58.9
No 6	A " " 1" " "	10.05	50.8	89.3
No 7	A " " ¾ " "	9.42	54.2	95.3
WHEATON	WHEATON TRIPLEX	9.08	56.2	98.8

HERE'S a *new* Vent Valve—made by Wheaton—that permits faster unloading than any other vent on the market. Tests *prove* it. Read the report at the left, which tells how this vent surpassed all competitors—with an efficiency rating of 98.8%!

Look at the diagrams at the top of this page. See how this new Wheaton Vent Valve positively *prevents evaporation.* See how excess pressure is immediately relieved by a simple ball check, and observe how air is admitted as contents are withdrawn. Note the remarkable *safety* features—how loss of contents is prevented if tank overturns; how fusible top melts and prevents tank from bursting in case of fire.

Replace your old vent valves with the Wheaton. It will save you hours each day in unloading. It will safeguard your tanks and product. And it will give you *longer service.* Wheaton Vent Valves are made of *all bronze*—the same tough, long-lasting bronze found in the finest Wheaton faucets and valves—machined and finished with characteristic Wheaton care. Send for a sample today. Give it your own test. If not entirely satisfactory, return it for credit or refund.

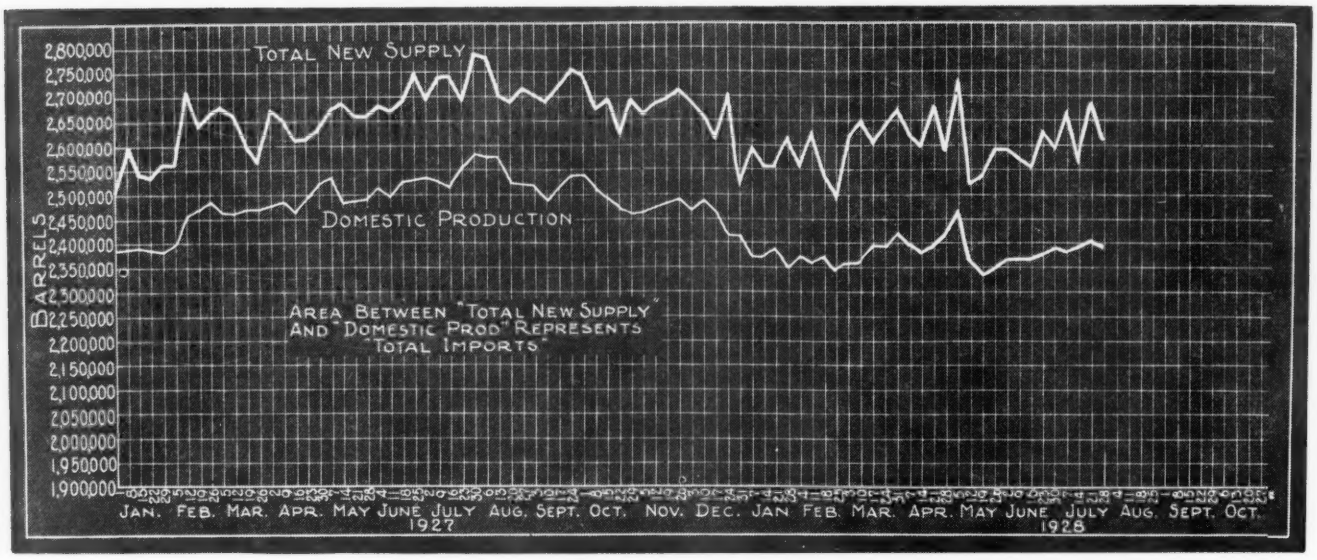
A. W. WHEATON BRASS WORKS, NEWARK, N. J.

Empire Brass Mfg. Co., Ltd., London, Ontario, Canadian Manufacturers and Distributors

Wheaton

FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	July 28	July 21
Production east of Rockies	**1,743,750**	**1,757,850**
Decrease		**14,100**
Total production in U. S.	**2,386,250**	**2,401,850**
Decrease		**15,600**
Crude oil imports	**223,143**	**281,854**
Decrease		**58,711**
Total crude supply	**2,609,393**	**2,683,704**
Decrease		**74,311**

OKLAHOMA

	July 28	July 21
North Braman	3,050	3,000
South Braman	1,500	1,500
Blackwell	3,500	3,500
Hubbard	2,650	2,600
Thomas	1,400	1,250
Tonkawa	13,600	13,750
Garber	8,450	8,350
Burbank	29,400	29,800
Osage, outside Burbank	26,950	26,900
Cushing	19,850	19,850
Yale Jennings	7,600	7,700
Davenport	1,900	1,900
Bristow-Slick	21,400	21,600
North Okmulgee	14,800	14,900
Pearson	4,300	4,400
Lyons-Deaner	5,900	6,050
St. Louis	38,050	35,500
Allen Dome	21,900	20,550
Cromwell	9,250	9,300
Papoose	4,200	4,250
Wewoka	6,200	6,150
Seminole	50,700	51,250
Bowlegs	56,550	57,150
Searight	12,950	13,000
Little River	40,150	41,700
Earlsboro	77,100	78,150
Duncan district	7,800	8,100
Graham	5,350	5,400
Fox	1,600	1,600
Healdton	14,150	14,150
Hewitt	9,650	9,550
Scholem Alechem	15,650	15,350
Others	52,300	50,500
Total Oklahoma	589,800	588,700
Increase		1,100

KANSAS

Greenwood County	28,500	28,450
Florence-Covert	1,000	1,050
Peabody-Elbing	3,200	3,250
Eldorado-Towanda	12,950	13,050
Augusta-Fox-Bush	3,400	3,450
Rainbow Bend	1,600	1,600
Russell	3,800	3,800
Churchill	10,250	10,350
Oxford	10,400	10,650
Others	27,500	26,650
Total, Kansas	102,600	102,300
Increase		300

NORTH LOUISIANA

	July 28	July 21
Homer	4,400	4,400
Haynesville	6,100	6,150
Caddo, Light	9,600	9,400
Caddo, Heavy	3,200	3,150
De Soto, Red River	4,600	3,900
Elm Grove	600	600
Bellevue	850	850
Cotton Valley	4,900	5,050
Urania	7,300	7,350
Pleasant Hill	600	650
Total, North Louisiana	42,150	41,500
Increase		650

ARKANSAS

El Dorado	5,400	5,400
Champagnolle	13,450	15,700
Smackover, light	7,450	7,600
Smackover, heavy	57,900	58,100
Stephens	1,050	1,050
Nevada	1,400	1,400
Lisbon	2,000	2,000
Others	100	100
Total, Arkansas	88,750	91,350
Decrease		3,600

TEXAS (Outside Gulf Coast)

Panhandle District

Hutchinson County	34,000	35,300
Carson County	6,700	6,300
Gray County	21,000	20,350
Wheeler County	800	900
Others	200	200
Total, Panhandle District	62,700	63,050
Decrease		350

North Texas

	July 28	July 21
Burkburnett	10,050	10,300
Electra	13,750	13,300
Iowa Park and K-M-A	4,100	3,900
Wilbarger	31,150	24,850
Archer County	20,600	20,850
Montague-Cooke	11,050	11,200
Others	600	600
Total, North Texas	91,300	85,000
Increase		6,300

West Central Texas

	July 28	July 21
Stephens County	7,400	7,250
Eastland-Desdemona	7,600	7,800
Brown County	12,400	12,750
Coleman County	3,450	3,350
Callahan County	3,500	3,450
Shackleford County	10,550	10,300
Young County	8,150	8,450
Throckmorton County	850	1,000
Palo Pinto County	450	450
Jack County	1,300	1,350
Others	600	600
Total, West Central Texas	56,250	56,750
Decrease		500

West Texas

Jones County	1,650	1,550
Mitchell & Scurry Counties	3,050	3,000
Howard County	5,500	5,650
Reagan County	17,700	20,400
Crane & Upton Counties	65,400	64,900
Crockett County	3,200	2,750
Pecos County	63,100	70,400
Winkler County	177,300	181,450
Others	1,600	1,650
Total, West Texas	338,500	351,750
Decrease		13,250

East Central Texas

Mexia	6,900	6,950
Currie	450	450
Richland	550	550
Wortham	1,700	1,750
Corsicana-Powell	10,600	10,850
Nigger Creek	1,050	1,050
Total, East Central Texas	21,250	21,600
Decrease		350

Southwest Texas

Luling	13,100	13,250
Lytton Springs	1,050	900
Somerset	700	700
Laredo District	8,600	8,550
Dale	1,200	1,250
Others	400	400
Total, Southwest Texas	25,050	25,050
Total, Texas—(Outside Gulf Coast)	595,050	603,200
Decrease		8,150

GULF COAST

Coastal Texas

West Columbia	8,200	8,300
Damon Mound	800	750
Big Creek	3,000	3,200
Boling	2,000	1,900
Blue Ridge	6,500	6,900
Pierce Junction	12,050	11,200
Humble	1,300	1,300
Goose Creek	6,600	6,850
South Liberty	3,800	4,100
Hull	10,650	10,600
Saratoga	1,050	1,050
Batson	1,400	1,400
Barber's Hill	700	700
Sour Lake	3,400	3,400
Spindletop	37,000	38,000
Orange County	3,900	4,000
Others	2,400	2,600
Total, Coastal Texas	104,750	106,250
Decrease		1,500

Coastal Louisiana

Vinton	4,600	4,700
Sulphur Dome	4,200	4,400
Lockport	3,500	3,600
Sweet Lake	4,350	4,050
Evangeline	1,050	1,000
East Hackberry	4,300	5,400
Edgerly	1,100	1,100
Sorrento Dome	1,450	1,700
Others	2,200	900
Total Coastal Louisiana	26,750	26,850
Decrease		100
Total Gulf Coast	131,500	133,100
Decrease		1,600

ROCKY MOUNTAIN

Wyoming

Salt Creek	38,200	41,500
Grass Creek	2,450	2,600
Elk Basin	1,050	1,050
Big Muddy	2,700	2,750
Lost Soldier	4,100	4,000
Rock Creek	2,850	2,800
Lance Creek	550	550
Others	7,300	7,300
Total, Wyoming	59,200	62,550
Decrease		3,350

Montana

Cat Creek	1,700	1,700
Sunburst	8,300	8,300
Others	100	150
Total, Montana	10,100	10,150
Decrease		50

Colorado

Moffat (Craig)	1,350	1,100
Fort Collins	2,700	2,500
Florence	1,150	1,100
Others	2,700	3,400
Total, Colorado	7,900	8,100
Decrease		200

New Mexico

Hogback	200	200
Artesia	1,100	1,150
Rattlesnake	1,200	350
Others	200	200
Total New Mexico	2,700	1,900
Increase		800
Total, Rocky Mountain	79,900	82,700
Decrease		2,800

California

Santa Fe Springs	36,500	36,000
Long Beach	202,000	202,000
Huntington Beach	53,000	53,500
Torrance	17,000	17,000
Dominguez	11,000	11,000
Rosecrans	6,000	6,000
Inglewood	29,000	29,000
Midway-Sunset	71,000	71,000
Ventura Avenue	53,000	53,500
Seal Beach	33,000	34,500
Others	131,000	130,500
Total California	642,500	644,000
Decrease		1,500

Eastern

(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	114,000	115,000
Decrease		1,000

No need for the gager to be part chamois with the tanks fixed up in this manner. The pipe line department of Skelly Oil Co. refuses to expose its men to danger by not accepting oil from leases where the tank batteries are not protected in this or in a similar manner

It Costs But Little To Save Men

Scrap Heap often yields enough material to build guard rails around dangerous pumping powers, steps and walkways over threatening pullrods, troughs and walks for rods and roustabouts when pulling rods. Carelessness is greatest cause of loss of life and injury in oil fields; greatest company problem is in teaching men to think.

By John Power
N. P. N. STAFF WRITER

TULSA, July 28

OIL FIELD workers, both production and drilling men, must face a certain hazard in their daily tasks. How great this hazard is depends largely on the man himself.

Safety engineers employed by the major companies in the Mid-Continent are agreed that by far the majority of accidents are due to carelessness by the "accidentee" himself. No matter how "fool proof" a piece of equipment has been made, the contempt bred of familiarity will prompt some men to take chances. In that case no amount of guards or warnings will prevent causing accidents.

In the war on accidents the greatest offensive campaign is directed against this same carelessness. The chief weapon which is employed is education.

Men are warned in every conceivable way to guard against accident. Placards are posted, depicting the results of carelessness, bulletins are sent out from the home offices with suggestions for the men to follow which, if heeded, will reduce the number of accidents. Many of these warnings and hints seem to be platitudes of the lowest order, things which any experienced worker in his right mind would know not to do instinctively. But it is from a disregard of just such trivial things that a great many accidents result.

The safety work is not all done by preaching, however. Eager to do their part, most operators are providing working conditions under which their men can be as free from hazard as is humanly possible. In this article some of the devices which have been developed to promote safety on producing properties will be discussed.

By far the greater majority of safety appliances are home-made affairs whose cost in dollars and cents is negligible. Most junk piles yield enough material which can, with a little work, be fashioned into guards that will completely protect the pumper from the engine, idler and power.

The type of rail guard most commonly used in the Mid-Continent stands about three and a half feet from the floor. It consists of one or two rails, and is placed close enough to the engine, etc., to leave plenty of clear space on the floor, yet far enough away so that the working parts will not suffer interference.

Almost any size pipe which is available may be used. Junked 2-inch tubing serves this purpose excellently. Holes are drilled in the floor of the power-house deep enough to hold the guard fence upright.

These holes are "cased" with short nipples of the next larger size pipe and the uprights set in them. In the two rail type of guard a piece half as long as the desired height of the guard fits into the hole in the floor.

THE top of this piece is fitted into a four-way tee, the side openings of which are left parallel to the engine. Into the upper opening of the tee goes another piece the same length as the first piece of pipe. If the upright is the first one of the series, an ell is made up on top of the upper piece into which the top rail goes. If the upright is part of the guard proper then a three way tee is made up running on the end of the upper piece.

The holes in the floor are drilled large enough to permit the "fence" to be removed easily when it is necessary to work on the engine or power. Men are cautioned against leaning over a running engine or clutch pulley. Loose, baggy clothes,

Visible reminders of dangers keep safety constantly in mind

which invite disaster from belt clamps or other moving parts are warned against.

Similarly constructed rails, covered with a stout screen are often built between the flywheels of the engine. These prevent the pumper from getting caught between the spokes of the flywheels as he leans over to fill the oil cups while the engine is running.

The clutch is guarded in much the same way as the engine. The railings are covered with either a heavy screen or with sheet metal. This type of guard not only keeps the pumper's parts out of the clutch, but, should anything break, it keeps the clutch's parts out of the pumper.

The bands on the external-shoe type clutch have been known to break at odd moments, leaving the clutch with sufficient force to pass through the side of the power-house. The clutch handle, which should be long enough to permit the workman to stay well away from the clutch when throwing it, protrudes through a slot in the guard covering.

The engine guard railings continue the length of the power so that the belt, idler, and power wheel are all protected. All men are cautioned against working on or leaning over moving parts when filling oil or grease cups.

These guards which cover the moving members in a lease power-house are about all the mechanical protection which can be afforded his workmen by even the most particular operator. The rest depends entirely on the man himself. If he will be careless about observing the proper precautions, no amount of covering will keep him from getting hurt.

Such precautions as should be taken when rigging up a temporary arrangement for repairs must be put up by the workers themselves. When a block and tackle is set up to remove pistons or heavy cylinder heads for repairs the overhead supports should be carefully inspected to see that they will support the weight, and that nothing can slip sidewise under a lateral strain.

This can be guarded against by tying a piece of soft rope in a claw hitch over the cross members and the end of the piece serving as an I-beam. On smaller engines, the heads of which can be removed by hand, care should be taken to keep the lifters' feet in the clear. Safety engineers say that many accidents happen from a careless disregard of just such ordinary precautions as these.

One of the greatest safety factors both inside and outside a power house is neatness. On the properties of the Sinclair Oil & Gas Co., an organization which has an enviably low accident record, the powers are models of neatness. An out-building is provided for the regulator, the building

A walk for the roustabout and trough for the rods when pulling saves both men and equipment. All wells of the Sinclair Oil and Gas Company are equipped with these safe features

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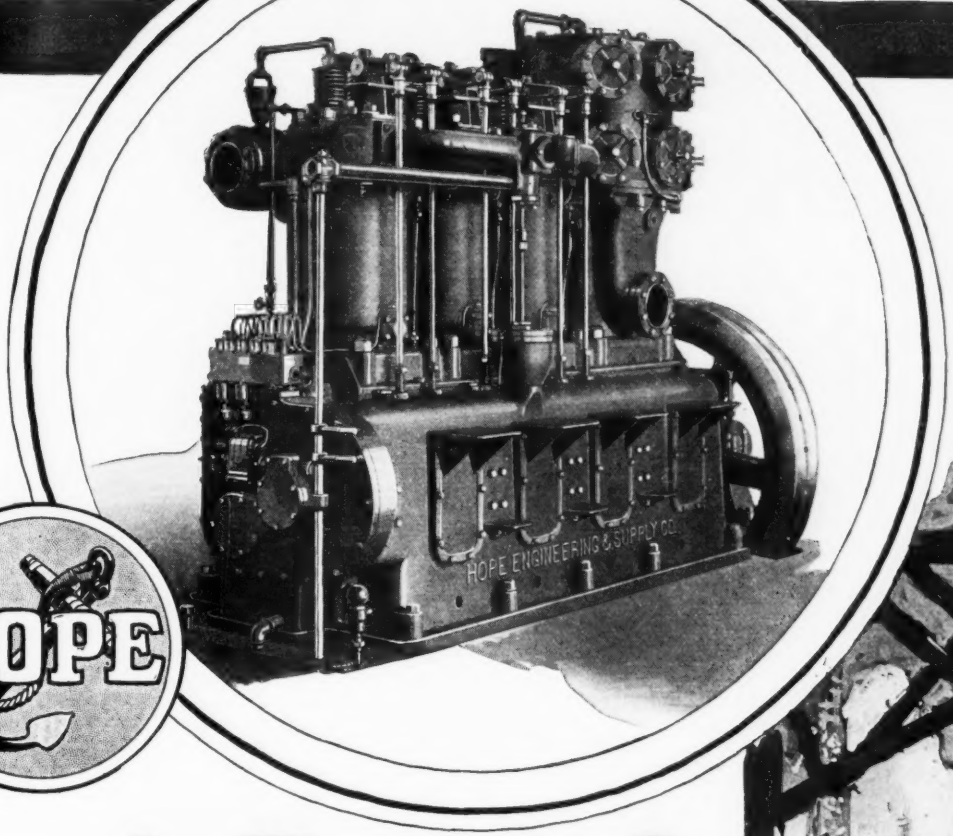


HOPE

As Rugged as it looks

The Hope Vertical Gas Compressor does not belie its appearance of rugged stand-up-ability. It carries its load without effort—it meets its responsibilities without hesitation. It can be depended upon for honest, economical, uninterrupted service—no matter what the operating requirements.

Shall we send Bulletin 1601?

ENGINEERS CONTRACTORS

HOPE ENGINEERING COMPANY

DESIGNERS MANUFACTURERS

MOUNT VERNON, OHIO, U.S.A.

NEW YORK, N.Y. DALLAS, TEX. TULSA, OKLA. CASPER, WYO.

Gas and Air in Oil Production

INCREASING oil recovery with gas and air lift—practical factors in operation—application methods—principles in oil production—restoring pressure to old pools—its effect on current and future recovery—

These and other phases now known to production engineers on this comparatively new method of oil recovery, have been discussed in past issues of NATIONAL PETROLEUM NEWS.

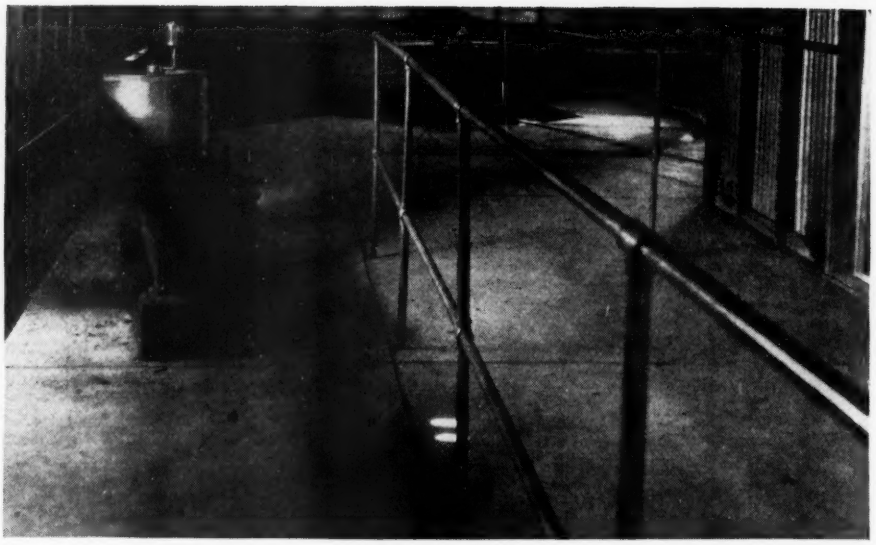
The new era of oil recovery ushered in by the gas lift has been faithfully followed in NATIONAL PETROLEUM NEWS.

Twenty articles since the first of the year have appeared, in addition to the dozens published since the introduction of the gas lift, written by such prominent engineers and geologists as James O. Lewis, Frank M. Brewster, John M. Lovejoy, S. F. Shaw, R. R. McLaughlin, E. A. Bennett, K. C. Sclater, E. V. Foran and Lester C. Uren.

Those published in NATIONAL PETROLEUM NEWS since the first of the year on the use of gas, air and water in producing oil, are:

Repressuring with volume controllers Jan 18, p. 87
Residue gas generates current for pumping wells Feb. 1, p. 75
Gas lift justified by speed of recovery Feb. 8, p. 47
Air lift results in Bristow Feb. 8, p. 52
No general repressuring in Seminole yet Feb. 15, p. 85
Air lift brings new hazards Feb. 22, p. 26
Repressuring during flush life of pools Feb. 29, p. 23
Effect of repressuring during flush stage Feb. 29, p. 53
Repressuring against 1500 pounds at Seal Beach Feb. 29, p. 23
Gas conservation in oil production Mar. 21, p. 27
Effect of modern production methods on natural gasoline Apr. 4, p. 17
Repressuring causes gasoline plants to close Apr. 11, p. 51
Fluid displacement pump used with gas lift Apr. 23, p. 100
Repressuring oil sands May 16, p. 85
Eastern field operators discuss repressuring May 23, p. 23
Results of pressure recovery in Bradford May 23, p. 25
Gas lift in relation to natural gasoline May 23, p. 97
Recovery of natural gasoline at gas lift plants May 23, p. 98
Intermittent use of gas lift economical May 30, p. 69
Origin and development of water flooding May 30, p. 59
Water flooding not successful in Kane, Pa. July 4, p. 50
Salt Creek has big gas drive July 11, p. 29

National Petroleum News
Main Office: 1213 West Third St.
Cleveland, Ohio



Guard rails like these are easily and cheaply made. They prevent many accidents by their mute warning of danger as well as by the actual protection which they afford. This installation, typical of many in the Mid-Continent, is in place on a Skelly Oil Co. lease in the Davenport field of Eastern Lincoln county, Okla.

being made large enough to store tools, a drum of lubricating oil, etc.

Chains or a couple of lengths of wire line with an old pair of casing hooks on the end suspended from the roof beam make it possible for one man to unload a drum of oil safely and easily.

Many accidents occur from men getting tangled up in the pull rods around the hook-off posts. With a view to safety as well as appearance, platforms are built so that the men may cross safely. In places where two pull rods are close together a sort of stile can be built out of such lumber as is usually to be found in abundance on older properties. But here again it lies within the power of the workman to protect himself from accident or to expose himself to injury.

Wells pumping on the beam present another problem in the application of safety devices. On many wells the ladder up which the pumper goes to oil the bearings and saddle on the beam are called ladders by courtesy only. They are often no more than cleats nailed to the rear sampson post support. Again a visit to the junk-pile should furnish enough lumber for steps and a hand rail, and for a walk parallel to the beam which can be built on top of the belt house. The cost of such fittings is negligible, and the average pumper has enough time to build them himself.

To keep the rod or tubing line from catching on the beam hanger, an occurrence which has several times killed men in the Mid-Continent, a protector made from a length of old pipe will do the work. The ends of the pipe are flattened and holes drilled through them. The pipe may generally be heated sufficiently with a torch to allow it to be bent so that it will form a "U" which may be placed around the end of the beam and parallel to it.

Old tubing or 2-inch pipe plays a big part in the manufacture of safety devices. An excellent walk with hand-rail guard can be made out of this used pipe which will make the work of pumper and gager safer, particularly during the time of year when snow and ice cover everything. The uprights which support the walk or scaffold are joints of pipe set up and cemented in the ground. The cross members which support the walk can be attached through the side openings of tees which are put on running on the upper end of the supports. By adding a short piece in the upper opening of the tee a hand rail can be provided which will make the walk as safe as a church.

Moran Goes Back To New York

LOS ANGELES, July 27.—Dan Moran, vice president of The Texas Co., headquarters in New York City, left Los Angeles July 24 for the trip back home after spending three weeks in the office of The Texas Co. of California in Los Angeles, becoming familiar with the local organization, going over the fields, etc.

LOS ANGELES, July 27.—During week ended July 21, California operators filed notices of plan to drill 35 new wells in state with the state oil and gas supervisor. Of the total number of notices filed, 16 called for new wells at Long Beach, 3 at Huntington Beach, with the rest scattered. To July 21, this year total of 583 new wells have been started compared with 771 new wells the same date last year.

LOS ANGELES, July 27.—P. M. Raigorodsky of the Engineering, Research & Equipment Co. of Los Angeles has departed for Dallas, Texas, where he will join J. E. Kobernik in handling company business in Mid-Continent and Gulf Coast.

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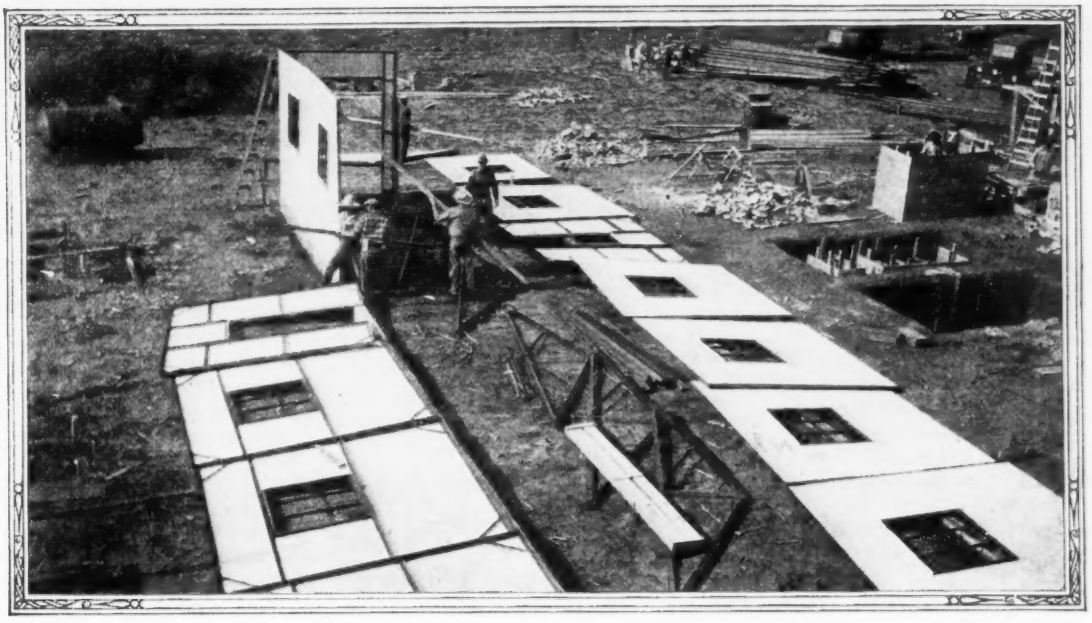

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583

Logan County Gets Attention Just Prior To More Happenings in Seminole

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, July 28

WITH the Little River area and the St. Louis pool of Twp. 7-5, west of Little River, quiet for the moment, some interest was attracted to Logan county, Okla., in the Roxana pool. A new well and an improvement in the performance of one that reached the sand several days ago—offset wells—put a little life into the Twp. 19N-4W area which had languished for several weeks.

The well which bettered its performance was the Roxana Petroleum Corp.'s No. 1 Rouse-B, in the NE corner of 19-19-4W. It was deepened 10 feet to total depth of 6,074 feet—Wilcox had been topped at 6,063 feet and entered one foot several days before—and it obliged with a flow of 2,236 barrels in 24 hours. It was then deepened 18 feet more and jumped to 100 barrels per hour.

It fell to the Sinclair Oil & Gas Co. to be the first "outsider" to break into Roxana's pool with production. No. 1-A Weber, in the SE corner of 18-19-4W, topped the Wilcox at 6,060 feet and drilled to 6,087. It made 1,810 barrels in 17 hours.

Incidentally, a drilling record was made for this area on the Sinclair well. Sinclair's first offset to the Roxana's operations around this fence corner got a huge flow of gas at 4,800 feet and could not be completed to the Wilcox. A twin well was started on April 1 this year and was completed to 6,070 feet in 117 days. When it is considered that upward of a year has been average time in this field, such speed is remarkable. This was a rotary job, drilled by Loffland Brothers, of Tulsa.

An earlier well drilled by the Roxana offsets the Sinclair well and the Roxana Rouse-B. It is the No. 1 Freelove, SW corner of Sec. 17, an April completion. It made 2,800 barrels initial and is still flowing 1,824.

The map on page 30 shows the development in this pool. It is more than a mile and a half from the discovery well to the outpost wells on the north but the development thus far runs right up and down the section line north and south with nothing to indicate whether there will be any appreciable width to the pool.

Southeast of the discovery well the map shows two producers. Both of them are small, making their oil from a sandy shale above the Wilcox, which was water laden. The Wentz well offsetting these two small wells was a failure and has been plugged. A dry hole was completed this week by Champlin Refining Co. in the SE SW of 8-19-4. Wilcox was found at 6645 feet and total depth was 6688 feet.

In the township next south of this, or 18N-4W, several wells produce small amounts of oil and considerable gas from the 4,000-foot horizon. The Roxana pool production on a recent date, excluding the wells in 18-4 and the new Sinclair well, was as follows:

Well	Location	Production
Freelove	17-19-4	1,824
McCully	30-19-4	1,940
Ross	29-19-4	595
Williams	32-19-4	163
Stephens	29-19-4	18
Rouse-A	20-19-4	590
Rouse-B	19-19-4	2,236
		7,366

The end of the week found a lot of things about to happen and it was indicated that important completions, proving or disproving this or that would be recorded in a few days. The St. Louis area, where Magnolia Petroleum Co. and T. B. Slick each completed a giant well several weeks ago—which are still gushing an average of 8,500 barrels each—claims attention and will be given definition as to Wilcox trend soon. This pool, including the eastern part of Twp. 7-4 and the western part of 7-5, is producing nearly 40,000 barrels per day. There are 56 Hunton lime wells making 6,000 barrels daily; 20 Simpson lime wells producing 15,000 barrels daily and the two Wilcox sand wells making 17,000 barrels. It is worthy of note that the Magnolia's No. 1 Fyke well, in 20-7-5, about a mile from the big Wilcox wells of Magnolia and Slick, is now considered by some geologists as Simpson production A large well, it had been thought to extend Wilcox production by that distance.

In this area, Darby Petroleum Co.'s No. 1 Harber, SE NE SW of 23-7-4 had been making about 115 barrels daily from the Hunton lime through a bradenhead. It showed a sudden increase to 42 barrels per hour. At the end of the week it was drilling at 4,271 feet in the Simpson formation with a hole full of oil and a show of water. In the NE SE of the same section, Interocean Oil Co.'s No. 1 McGee made 1,785 barrels in 24 hours from the Simpson formation topped at 4,078 feet. Westheimer & Daube's big Simpson well, in the NW SW NW of 24-7-4, is holding at around 3,500 barrels per day.

An extension of production two locations west at the southwest part of the original Little River pool was effected by the Carter Oil Co.'s No. 1 Moore, SE NE NW of 11-7-6 which topped the Wilcox at 4,201 feet, was drilled in 13 feet and swabbed at the rate of 1,000 barrels daily.

A mile west of the Allen pool of Seminole, Hughes and Pontotoc counties, the Mid-Continent Petroleum Corp.'s No. 2 Harjo, NE SE NE of 14-5-7, found sand at 2581-91 feet and oil rose 1,800 feet in the hole. The well looked like a small pumper.

Fisher County, Texas Gets Fourth Well

Staff Special

HOUSTON, July 26.—Finding of a soft spot in the pay has resulted in the fourth Fisher county well, near Royston, yielding initial production of 58 barrels an hour. The well, drilled by Cranfill & Reynolds, Inc., in the southwest corner of the northwest quarter of BBB&C Sec. 199, found the pay in the Cisco series beds at 3109-3112 feet, surface elevation 1788 feet.

The new well is on the Willingham tract, about a quarter of a mile southeast of the No. 1 Young completion previously made by Cranfill & Reynolds, Inc., and the Sun Oil Co., for 165 barrels, initial production, at 3106-3130 feet, surface elevation 1893 feet.

Both are northeast about three miles from the Fisher county discovery made last January by The Texas Co., which yielded maximum daily production of 275 barrels daily from pays found at 3238-3241 and 3250-3255 feet, surface elevation 1925 feet. Later, a south offset of Sinclair Oil & Gas Co. made initial production of about 600 barrels at 3210-3225 feet, surface elevation 1900 feet.

The Texas Co. and Sinclair wells are, respectively, in Secs. 79 and 72, about two miles northeast of the MK&T railroad station at Royston.

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New Light Field on Ocean North of Los Angeles

LOS ANGELES, July 28

A NEW high gravity oil field for Santa Barbara county was opened July 26, when the well drilled by the Barnsdall Oil Co. for the Rio Grande Oil & Refining Co., 12 miles west of Santa Barbara, on the ocean front, came in for about 2500 barrels of 37.5 gravity clean oil. It was cutting 1.5 per cent of rotary mud, with no trace of water.

The well is located in Elwood Terrace and is known as Luton No. 1. It was completed at 3208 feet, with a string of 11-inch cemented at 3150 feet, and is producing from 40 feet of rich oil sand, the drill having stopped in the sand.

The casing pressure at noon July 27 was 500 pounds and was building up, while the tubing pressure was 450 pounds. The flow is steady and coming through a 30/64-inch bean, with a gas production estimated at 1,000,000 cubic feet.

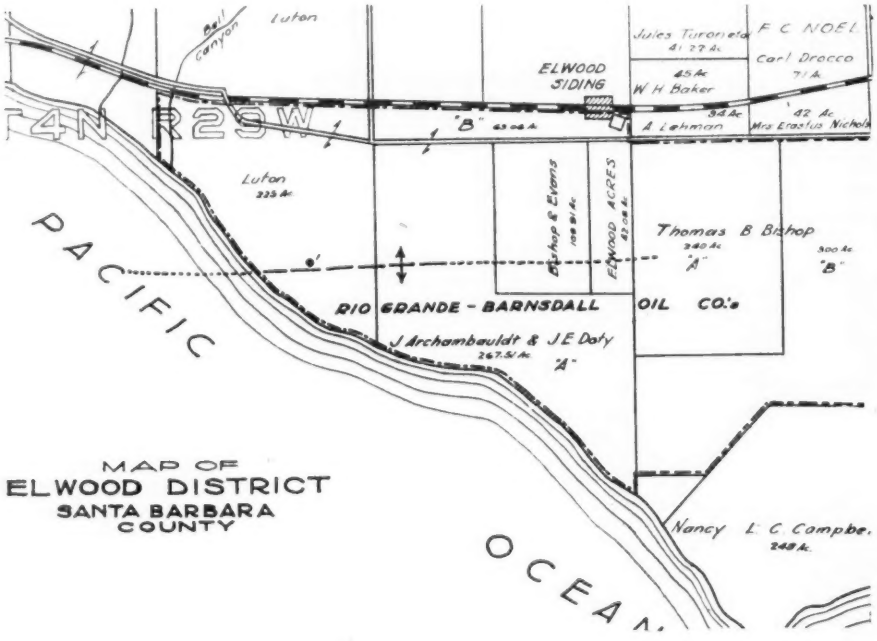
The gas tests between two and three gallons of natural gasoline to the 1000 cubic feet, while the oil shows a content of 48 per cent gasoline. Tubing is hung at 3100 feet.

The Rio Grande some months ago secured the leases on 1312 acres in a solid block. The structure was worked out by Frank A. Morgan and Barnsdall agreed to drill the well for a half interest in the acreage. It is understood, although this is unofficial, that lease requirements call for the starting of four additional wells in the near future. Shell Co. holds 200 acres adjoining the blocked tract and other companies hold various tracts, although it is not thought any of the offset acreage is very valuable for drilling purposes.

The structure runs directly east and west, as shown on an accompanying map, and extends into the ocean. Rio Grande filed applications some weeks ago, ahead of all others, for permits to drill in the ocean, although the company at this time is not planning on a drilling campaign in the ocean. Action was taken simply to protect the interests of the company. The production in the new well is coming from Miocene rocks, Monterey formation. The old Goleta field lies about two and a quarter miles almost directly north of the new well, where the oil was secured from the Oligocene, Sespe formation, was amber in color, and cold. The oil from the new area is of proper temperature and dark in color.

All the wells in the Goleta field except one quit producing and the lone producer is making much less than 100 barrels of oil daily. At first thought many operators feared the new field on the ocean front was from similar formation and producing similar oil; but the change in formation together with lower gravity, etc., indicates to many that the latest field will be a better producer than Goleta and that the two should not be compared.

As the Rio Grande and Barnsdall hold all of what is declared the structure, it is not expected that more wells than necessary will be drilled. For this reason the field will have little effect on the general production situation in the state.



Carbon Tetrachloride Causes Explosion

CLEVELAND, July 25.—Carbon tetrachloride is universally thought of as a fire extinguisher but an accident that occurred recently at the University of Wisconsin proves that it is not always so. The accident is thus described in the July 20 issue of Industrial and Engineering Chemistry News Edition:

"A beaker containing sodium residues and some bits of paper was observed to be on fire and the graduate student who discovered the fire poured a liberal quantity of carbon tetrachloride into the beaker. Immediately there was a violent explosion and the entire room was so filled with soot that the student could scarcely see his way out. The material was thrown into his face and he suffered painful burns which necessitated two weeks' hospitalization.

"Presumably the sodium was at least partially melted by the heat from the burning paper and the carbon tetrachloride coming into contact with this melted sodium exploded. Although this reaction has been described in the literature, it does not seem to be widely known nor the danger fully appreciated."

Seven Completions at Long Beach

LOS ANGELES, July 28.—During the past week, seven new wells were completed at Long Beach with an average initial production of about 1500 barrels to the well, indicating that the field should show a small increase for the week. The number of drilling wells shows no decrease for the period, as new wells were started in sufficient number to offset the completions.

Shell Co.'s Nicholson No. 5 at Long Beach July 27 was drilling at 7665 feet in oil sand and shale. This well probably will continue drilling as long as possible to find the bottom of the oil producing zone.

Sinclair Manager Starts in Business

CLEVELAND, July 27.—E. L. Wolfe, for seven years connected in various executive capacities with the Sinclair Refining Co. and most recently district manager at Boston, has resigned that position and has started the Wolverine Oil Co. Inc., of Brockton, Mass., according to D. F. Gallagher, chief clerk. Mr. Wolfe's new bulk plant and warehouse has been completed and he has exclusive franchise to sell Sinclair products in Brockton and vicinity. He has five stations.

Conservation Report Indorsed By Bar Association

Staff Special
TULSA, July 28

THE American Bar Association, meeting in Seattle the past week, approved by a large vote the report of the Committee of Nine organized several months ago by Hubert Work, chairman of the federal oil conservation board. The committee consists of three oil industry representatives, three from the mineral law section of the American Bar Association and three federal government representatives.

The approval given at the Seattle meeting includes approval of the form of bill for relief from federal anti-trust laws where oil producers set up agreements for the unit operation of oil pools. The association also continued the bar association committee that has been studying this subject and delegated to it the duty of studying the desirability and the form of state legislation to give relief from state anti-trust laws and providing for cooperative development of single pools and conservation of gas. The end sought is the permissive type of legislation that will enable operators to enter acreage pooling agreements and unit operation without running afoul of state laws.

The report of the Committee of Nine, on which action was taken at Seattle, was published in the Feb. 8, 1928 issue of NATIONAL PETROLEUM NEWS. The committee drafted a bill which it believed would cover the federal end sought. The bill specifically declares that agreements for the cooperative development and operation of single oil pools are not in violation of federal anti-trust laws. It also makes the Federal Oil Conservation Board the agency to determine when an overproduction of oil exists and to permit, under proper safeguards, agreements among producers to restrain production from existing fields and drilling in new fields. That proposed law has not come before Congress for action.

The Committee of Nine consists of the following: Representing the oil industry, T. A. O'Donnell, Los Angeles; J. Edgar Pew, Sun Oil Co., Dallas; W. S. Farish, Humble Oil & Refining Co., Houston.

Representing the American Bar Association: Henry M. Bates, dean of law school, University of Michigan; James A. Veasey, Carter Oil Co., Tulsa and Warren Olney, Jr., San Francisco.

Representing the government: Edward C. Finney, assistant secretary of the interior; Walter F. Brown, assistant secretary of commerce and Abram F. Myers, federal trade commissioner.

Mr. Veasey and Harry H. Smith, secretary of the Mid-Continent Oil & Gas Association, were Tulsans who attended the Seattle meeting.

Gurney E. Newlin, a leading Pacific coast lawyer and a director of the Union Oil Co. of California, was elected president of the American Bar Association.

Winkler Prorating Plan Under Attack

(By Telegraph)

HOUSTON, July 30.—Cranfill and Reynolds Inc. have withdrawn their petition asking the railroad commission of Texas to vacate the Winkler County prorating order or modify its provisions. A hearing called for August 1, at Austin, was thereupon cancelled.

Withdrawal of the petition followed meetings of company officials at Fort Worth with the Winkler County advisory committee of operators. No announcement has been made as to discussion at these meetings, but adjustments in allowable production under the prorating plan probably will be made.

Standard Man Opens Bulk Plant

RICE LAKE, Wis.—H. A. Robertson, who formerly was with the Standard Oil Co. of Indiana, working out of its Minneapolis and Duluth divisions, has entered the oil jobbing business for himself, and just completed a bulk plant here. The business is being conducted under the name of Land O' Lakes Oil Co. Products of the W. H. Barber Co. will be handled.

Seminole District Production by Companies and Leases, July 25 and July 18, 1928

BOWLEGS

Company	Farm	S.T.R.	July 25 Wells	July 25 Prod.	July 18 Wells	July 18 Prod.
Amerada	Rascoe	15- 8-6	8	1,320	8	1,205
Atlantic	Baker	1- 8-6	4	544	4	575
Atlantic	Fleet	23- 8-6	3	375	3	315
Atlantic	Grayson	21- 8-6	4	615	4	615
Atlantic	A. Jones	10- 8-6	2	75	2	45
Atlantic	C. Jones	9- 8-6	1	77	1	0
Total Atlantic..			15	3,006	15	2,755
Barnsdall	McNac	28- 8-6	1	12	1	27
Barnsdall	Murrow	11- 8-6	4	684	4	711
Total Barnsdall.			5	696	5	738
Carter	Bowlegs	15- 8-6	4	1,120	4	1,195
Carter	Burden	23- 8-6	2	275	2	220
Carter	Harjoche	15- 8-6	6	615	6	630
Carter	Hilly	23- 8-6	3	775	3	800
Carter	Jones	11- 8-6	4	745	4	780
Carter	McGeisey	21- 8-6	1	10	1	10
Carter	Walker	15- 8-6	4	360	4	400
Carter	Wise	23- 8-6	11	2,150	11	2,165
Total Carter....			35	6,050	35	6,200
Dixie	Culley	11- 8-6	1	85	1	80
Empire	Lacey	15- 8-6	6	445	6	334
Empire	Wise	23- 8-6	2	297	2	332
Total Empire...			8	742	8	666
Gypsy	Bowlegs	22- 8-6	1	200	1	250
Gypsy	Bradley	8- 8-6	1	2	1	2
Gypsy	Cumsey	8- 8-6	4	940	4	992
Gypsy	Dosar	7- 8-6	1	100	1	100
Gypsy	Grayson	13- 8-6	4	355	4	375
Gypsy	Harjoche	10- 8-6	3	1,015	3	1,442
Gypsy	Jones	11- 8-6	1	47	1	25
Gypsy	Mission	5- 8-6	1	50	1	50
Gypsy	Walker	15- 8-6	8	1,255	8	1,385
Gypsy	Wise	23- 8-6	2	300	2	300
Total Gypsy...			26	4,264	26	4,901
I. T. I. O.	Barnett	23- 8-6	2	312	2	350
I. T. I. O.	Barnett-B	24- 8-6	1	161	1	178
I. T. I. O.	Billington	22- 8-6	5	506	5	646
I. T. I. O.	Bowlegs	22- 8-6	10	1,560	10	1,426
I. T. I. O.	Davis	22- 8-6	4	936	4	1,006
I. T. I. O.	Fay	13- 8-6	9	2,270	9	2,357
I. T. I. O.	Goforth	15- 8-6	12	1,318	12	1,286
I. T. I. O.	Livingston	15- 8-6	10	2,577	10	2,792
I. T. I. O.	Lizzie	13- 8-6	3	414	3	452
I. T. I. O.	Walker	15- 8-6	8	1,130	8	1,033
I. T. I. O.	Wilmott	15- 8-6	4	334	4	317
I. T. I. O.	Work	24- 8-6	1	119	1	129
I. T. I. O.	Youngblood	24- 8-6	2	57	2	11
Total I. T. I. O.			71	11,694	71	11,983
Magnolia	Davis	13- 8-6	3	463	3	486
Magnolia	Davis-M	13- 8-6	1	297	1	235
Magnolia	Hammond	10- 8-6	7	1,039	7	942
Magnolia	Rhodes	12- 8-6	6	2,416	6	2,770
Magnolia	Van Buskirk	9- 8-6	1	274	1	234
Total Magnolia.			18	4,489	18	4,667
Marland	Maines	7- 8-6	1	0	1	648
McCulloch	Bowlegs	22- 8-6	2	420	2	420
Mid-Continent	Baker	10- 8-6	4	894	4	957
Mid-Continent	Bowlegs	22- 8-6	1	1	1	1
Mid-Continent	Smith	12- 8-6	6	480	6	555
Total Mid-Continent			11	1,375	11	1,513
Minnehoma	Bowlegs	15- 8-6	4	350	4	285
Prairie	Gahagan	23- 8-6	4	310	4	410
Prairie	Harber	10- 8-6	8	2,145	8	2,205
Prairie	Jones	11- 8-6	4	430	4	525
Prairie	Templeton	12- 8-6	6	1,915	6	1,895
Prairie	Whitney	23- 8-6	4	375	4	810
Total Prairie...			26	5,175	26	5,845
Pure	Reed	14- 8-6	14	3,624	14	3,428
Pure	Strother-D	14- 8-6	4	229	4	428
Pure	Strother-F	10- 8-6	7	2,322	7	1,899
Total Pure.....			25	6,175	25	5,755

(Continued on Page 42)

Seminole District Production by Companies and Leases, July 25 and July 18, 1928

(*Continued from Page 41*)

Company	Farm	S.T.R.	July 25 Wells	July 25 Prod.	July 18 Wells	July 18 Prod.
Roxana	Taylor	16- 8-6	5	91	5	132
Shaffer	Lacy	14- 8-6	3	250	3	375
Sinclair	Bowlegs	22- 8-6	1	25	1	30
Sinclair	Cumsey	10- 8-6	4	1,960	4	2,092
Sinclair	Ellen	11- 8-6	7	827	7	1,045
Sinclair	Harjo	14- 8-6	3	647	3	732
Sinclair	Jones	10- 8-6	7	773	7	980
Sinclair	Taylor	10- 8-6	4	1,373	4	1,353
Sinclair	Taylor-W	10- 8-6	3	946	3	975
Sinclair	Walker	22- 8-6	4	847	4	727
Total Sinclair			33	7,398	33	8,024
Texas	Reed	14- 8-6	11	1,690	11	1,600
Tidal	Grayson	13- 8-6	4	410	4	440
Tidal	Harjoche	10- 8-6	6	1,805	6	1,620
Total Tidal			10	2,215	10	2,060
Twin State	Hayes	8- 8-6	1	110	1	120
Twin State	Jones	11- 8-6	3	115	3	30
Total Twin State			4	225	4	150
TOTAL BOWLEGS			321	56,267	321	58,627
EARLSBORO						
Amerada	Anderson	15- 9-5	2	892	2	906
Amerada	Cowden	4- 9-5	7	1,482	7	1,514
Amerada	Rogers	3- 9-5	2	132	2	550
Total Amerada			11	2,506	11	2,970
Atlantic et al	Foreman	18- 9-5	1	149	1	155
Barnsdall	Brown	10- 9-5	4	2,677	4	2,871
Banrsdall	F. Bruner	2- 9-5	2	732	2	847
Barnsdall	N. Bruner	10- 9-5	3	1,304	3	1,437
Barnsdall	Cudjo	14- 9-5	1	25	1	25
Barnsdall	D. Davis	11- 9-5	3	227	3	156
Banrsdall	J. Davis	11- 9-5	4	1,312	4	1,188
Barnsdall	M. Davis	11- 9-5	3	78	3	78
Barnsdall	Gibson	9- 9-5	8	1,911	8	2,146
Barnsdall	Hern	15- 9-5	1	2	1	3
Barnsdall	Ingram	1- 9-5	8	1,493	8	1,818
Barnsdall	Pack	10- 9-5	4	166	4	174
Barnsdall	Peter	10- 9-5	4	186	4	198
Barnsdall	Sango	1- 9-5	5	4,564	5	4,958
Barnsdall	Sebolka	15- 9-5	1	437	1	415
Barnsdall	H. Sullivan	11- 9-5	1	4	1	0
Barnsdall	Sull-Harjo	10- 9-5	2	45	2	42
Barnsdall	Watsutke	12- 9-5	4	1,462	4	1,404
Total Barnsdall			58	16,625	58	17,760
Carter	Davis	13- 9-5	2	260	2	275
Carter	Sango	1- 9-5	4	505	4	500
Total Carter			6	765	6	775
Continental	Kays	2- 9-5	2	15	2	108
Continental	Spencer	12- 9-5	4	1,250	4	980
Total Continental			6	1,265	6	1,088
Empire	Barker	12- 9-5	1	0	1	170
Empire	Edmundson	3- 9-5	3	158	3	155
Total Empire			4	158	4	325
Gypsy	Bruner	10- 9-5	4	3,340	4	2,955
Gypsy	B. Carter	11- 9-5	8	3,935	8	4,067
Gypsy	Earl	16- 9-6	1	17	1	15
Gypsy	Hunick	5- 9-5	1	2,025	1	2,052
Gypsy	Noble	12- 9-5	4	2,137	4	2,175
Gypsy	Peter	10- 9-5	3	345	3	345
Gypsy	Sango	1- 9-5	5	2,217	5	1,810
Gypsy	State	16- 9-5	4	910	4	810
Total Gypsy			30	14,926	30	14,219
Independent	Bruner	10- 9-5	3	290	3	435
Independent	Sullivan	10- 9-5	2	30	2	67
Independent	Knapp	8- 9-5	3	2,090	3	2,065
Indep.-Margay	Gaines	11- 9-5	4	670	4	695
Total Independent			12	3,080	12	3,262
Magnolia	Bryant	9- 9-5	6	913	6	961
Magnolia	Cowden	4- 9-5	4	40	4	45
Magnolia	Edmundson	3- 9-5	3	20	3	21
Magnolia	Holmsley	11- 9-5	7	556	7	625
Magnolia	Hyde	13- 9-5	1	1,616	1	1,657
Magnolia	Ingram	10- 9-5	1	28	1	28
Magnolia	Lena	10- 9-5	3	56	3	56
Magnolia	Seay	12- 9-5	9	2,843	9	3,037
Magnolia	Simpson	10- 9-5	3	117	3	115
Magnolia	Sparks	11- 9-5	7	762	7	902
Magnolia	Sullivan	12- 9-5	3	87	3	98
Total Magnolia			47	7,038	47	7,545
Mid-Continent	McCumber	9- 9-5	7	90	7	50
Mid-Kansas	Anderson	14- 9-5	3	95	3	90
Phillips	Dunnaway	14- 9-5	1	30	1	30
Prairie	Baker	24- 9-5	1	50	1	50
Prairie	Davis	13- 9-5	5	3,175	5	3,140
Prairie	C. Graham	3- 9-5	2	25	2	15
Prairie	O. Graham	10- 9-5	4	1,215	4	1,440
Prairie	Stidham	11- 9-5	13	3,566	13	3,250
Total Prairie			25	8,031	25	7,895
Roxana	Bayliss	17- 9-5	1	13	1	13
Roxana	Spencer	12- 9-5	2	214	2	989
Total Roxana			3	227	3	1,002
Shaffer	Clark	1- 9-5	3	510	3	530
Sinclair	Foreman	18- 9-5	1	15	1	15
Sinclair	Hollins	12- 9-5	1	40	1	50
Sinclair	Sango	2- 9-5	3	2,940	3	3,375
Total Sinclair			5	2,995	5	3,440
Skelly et al	Sherry	6- 9-5	1	3,737	1	3,700
Skelly	Spencer	12- 9-5	1	443	1	457
Total Skelly			2	4,180	2	4,157
Superior	Walker	2- 9-5	2	3,365	2	3,642
Texas	Anderson	2- 9-5	8	605	8	670
Texas	Brown	10- 9-5	8	985	8	1,250
Texas	Rogers	5- 9-5	4	2,610	4	2,530
Texas	Wilmott	10- 9-5	7	580	7	560
Total Texas			27	4,780	27	5,010
Tidal	Watkins	9- 9-5	7	3,235	7	3,240
Twin State	Barker	12- 9-5	2	55	2	88
Twin State	Hern	2- 9-5	4	365	4	370
Total Twin State			6	420	6	458
TOTAL EARLSBORO			271	75,462	272	77,700
LITTLE RIVER						
Amerada	Nitey	2- 7-6	3	1,510	3	1,525
Amerada et al	Fore	35- 8-6	2	330	2	415
Total Amerada			5	1,940	5	1,940
Barnsdall	Hotulke	22- 7-6	1	33	1	35
Blackwell	Nitey	35- 8-6	6	2,036	6	1,482
Carter	Fish	36- 8-6	6	900	6	1,030
Carter	Jackson	11- 7-6	2	1,760	2	1,750
Carter	Larney	11- 7-6	1	100	1	100
Carter	Wilson	12- 7-6	1	100	1	100
Total Carter			10	1,960	10	2,980
Continental	Cosar	36- 8-6	4	1,515	4	1,760
Continental	Cosar-M	25- 8-6	1	350	1	500
Gypsy	Brown	33- 8-6	1	3,125	1	1,880
Gypsy	Conard	22- 7-6	1	100	1	100
Gypsy	Cosar M		1	57	1	117
Gypsy	Campbell	36- 8-6	2	182	2	210
Gypsy	Cosar W		1		1	
Gypsy	Denmark	11- 7-6	1	100	1	100
Gypsy	Nungee	1- 7-6	1	30	1	40
Gypsy	Hulhoke	14- 7-6	1	100	1	100
Gypsy	Pottie	35- 8-6	4	1,000	4	1,094
Gypsy	Renton	11- 7-6	3	2,025	3	2,365
Total Gypsy			16	6,719	16	6,451
Independent	Harris	23- 7-6	2	200	2	200
Independent	Davis	2- 7-6	3	1,850	3	1,825
Total Independent			5	2,050	5	2,025
I. T. I. O.	Campbell	1- 7-6	1	278	1	298
I. T. I. O.	Dungan	35- 8-6	3	1,442	3	1,447
I. T. I. O.	MA House	1- 7-6	1	57	1	41
I. T. I. O.	WE House	1- 7-6	1	64	1	54
I. T. I. O.	WE House-B	2- 7-6	4	1,528	4	1,543
I. T. I. O.	Hull	26- 8-6	2	1,877	2	2,281
I. T. I. O.	Jackson	1- 7-6	3	1,017	3	1,028
I. T. I. O.	McCulla	1- 7-6	3	742	3	754
I. T. I. O.	Nitey	2- 7-6	6	549	6	484
I. T. I. O.	Phoebe-A	36- 8-6	3	543	3	543
I. T. I. O.	Phoebe-B	36- 8-6	4	162	4	199
I. T. I. O.	Reed	1- 7-6	1	36	1	10
I. T. I. O.	Soketheche	1- 7-6	3	716	3	753
Total I. T. I. O.			35	9,011	35	9,435
Magnolia	Cruse	2- 7-6	4	1,250	4	1,425
Magnolia	Dixon	31- 8-7	1	0	1	1
Magnolia	Pottie	35- 8-6	3	784	3	692
Magnolia	Reed	22- 7-6	1	100	1	100
Total Magnolia			9	2,134	9	2,218
Mid-Continent	Bruner	11- 7-6	1	100	1	100
Mid-Cont.	Smith	5- 7-7	1	70	1	70
Mid-Cont.	Wadsworth	36- 8-6	7	640	7	730
Total Mid-Continent			9	810	9	900
W. B. Pine	Hoyecha	26- 8-6	2	1,040	2	1,122
Pine et al	Pottie	36- 8-6	2	430	2	511
Total Pine			4	1,470	4	1,633
Pure	Harjo	11- 7-6	1	2,294	1	2,419
Prairie	Chilcoat	25- 8-6	3	1,455	3	1,210
Prairie	Dungan	35- 8-6	1	30	1	35
Prairie	House	2- 7-6	4	850	4	915
Total Prairie			8	2,335	8	2,160
Reiter-Foster	Bunyard	14- 7-6	1	100	1	100
Roxana	Caesar	11- 7-6	1	219	1	224
Roxana	Hotulke	23- 7-6	1	107	1	99
Total Roxana			2	326	2	323
Shaffer	Narcome	36- 8-6	1	45	1	50
Sinclair	Cosar	36- 8-6	3	2,425	3	2,515
Sinclair	Teewee	14- 7-6	1	100	1	100
Total Sinclair			4	2,525	4	2,615
Slick	Williams	15- 7-6	1	100	1	100
Snowden-McS	Tiger	13- 7-6	1	230	1	0
Superior	Soketheche	1- 7-6	1	10	1	10
Texas	Coker	1- 7-6	3	1,130	3	1,375
Texas	Hotulke	23- 7-6	1	95	1	105
Total Texas			4	1,225	4	1,480
Tidal	House	1- 7-6	3	605	3	635
Tidal	Johnson	1- 7-6	1	35	1	35
Total Tidal			4	640	4	670
Twin State	Lowe	25- 8-6	1	175	1	150
Total Little River			135	41,235	135	41,436

SUMMARY

TOTAL BOWLEGS	**321**	**56,267**	**321**	**58,627**
TOTAL EARLSBORO	**271**	**75,462**	**270**	**77,700**
TOTAL SEMINOLE	**300**	**51,124**	**300**	**50,899**
TOTAL SEARIGHT	**67**	**13,042**	**67**	**13,603**
TOTAL LITTLE RIVER	**135**	**41,235**	**135**	**41,436**
GRAND TOTAL SEMINOLE AREA	**1,094**	**237,130**	**1,095**	**242,265**
Average per well		**217**		**221**

Completions in N. E. Central, West, Panhandle and North Texas, Week Ended July 21, 1928

NORTH AND EAST CENTRAL

Anderson County

Company	Well	Farm	Location	Survey	Depth	Init. Prod.
Humble	2	Jones		Roberts	3655-3665	20M

Brown County

Henshaw	1	Penticost		Jones	T.D. 1406	Dry
Crowder et al	3	Lewis		Kenney	T.D. 1085	Dry
Daniels et al	1	Thompson		Berry	T.D. 1001	Dry
Stanley	1	Teague		Kenney	T.D. 1045	Dry
Lamp	1	Sweet		Grant	T.D. 1680	Dry
Evans	1	Martin		HT&B	T.D. 962	Dry
Campbell et al	1	Sweet		HT&B	T.D. 350	Dry
Midland	7	Butler		Benson	1272-1297	150
Ramsey	4	Henson		Logan	1266-1284	5
Charter	7	Byler		T&NO	1302-1322	148
Lloyd et al	3	Collier		Smith	420-435	9

Callahan County

Tidal	1	Gilland		BBB&C	T.D. 825	Dry

Coleman County

Collins et al	1	Miller		HT&B	T.D. 2307	Dry
Manhattan et al	1	Richardson		Sec-49, Blk-666	T.D. 1663	Dry
Roth-Faurot	10	Stevens		Coleman Co. Sch. Ld.	2104-2119	20
Cunningham et al	3	Jennings		Lipscomb	1187-1198	80
Cunningham et al	4	Jennings		Lipscomb	1120-1128	71&2.9 M
Charter	2	Crump		Sec-13, Blk-65	1852-1860	350

Eastland County

McLester	2	Gailey		DeLan	T.D. 785	Dry
Lewis et al	1	Van Geem		H&TC	T.D. 1513	Dry
Thompson	1	White		H&TC	T.D. 3660	Dry
Leckner-Clark	1	White		ET	T.D. 1451	Dry
McLester et al	3	Thorpe		Sarton	3695-3717	3M&250
Texas-Pacific	3	Fee		Van Norman	3002-3011	100

Jack County

Rayford et al	4			Berryman	T.D. 525	Dry
Hayes et al	1	Kinder		TE&L	T.D. 1909	Dry
Rayford et al	1	Pickrell		Berryman	503-518	1
Ellis et al	3	Ellis et al.		Williams	465-488	6
Ellis et al	2	Ellis et al		Williams	501-510	3
Ellis et al	4	Ellis et al.		Williams	450-474	8
Ellis et al	5	Ellis et al.		Williams	460-476	6

Jones County

Huconey et al	1	Tyner		T&P	2528-2535	844

Limestone County

Pipken et al	1	Richardson		Varella	T.D. 3310	Dry
Moutray et al	1	Peeples		Price	T.D. 2397	Dry

Navarro County

Byrd et al	1	Shelton		Shelton	T.D. 3395	Dry

Palo Pinto County

Wickens et al	1	Strawn Sch. Lot.		Bird	T.D. 864	Dry

Shackelford County

Tannehill et al	3	Mathews		ET	1150-1168	200
Tannehill et al	3	Mathews		ET	1151-1168	150
Hope	1	Reynolds		T&P	1147-1154	2½M
Decatur	1	Moberly		T&P	1222-1225	15
Roeser-Pendleton	50A-60	Cook		ET	1162-1178	40
Roeser-Pendleton	61A-60	Cook		ET	1278-1297	150
Roeser-Pendleton	63A-60	Cook		ET	1160-1172	40
Roeser-Pendleton	67A-60	Cook		ET	1160-1172	40
Roeser-Pendleton	71A-60	Cook		ET	1168-1197	300&1M
Skelly	3	Mathews		ET	1040-1050	10
Skelly	4	Mathews		ET	1173-1180	25
Skelly	2	Mathews		ET	1183-1184	15
Roeser-Pendleton	64A-60	Cook		ET	1151-1176	60
Roeser-Pendleton	65A-60	Cook		ET	1157-1174	52
Roeser-Pendleton	66A-60	Cook		ET	1160-1176	45
Roeser-Pendleton	68A-60	Cook		ET	1154-1170	40
Anderson	1	Davis		TE&L	T.D. 645	Dry
Lewis Prod	1	Mathews		ET	T.D. 1632	Dry
Big States	5	Russ		Sec-16, Blk-11	T.D. 1338	Dry
Callahan et al	3	Nail		ET	T.D. 1558	Dry
Cranfill-Reynolds	1	King		T&P	T.D. 1730	Dry
McLester et al	2	Moberly		T&P	T.D. 1555	Dry
Petroleum Prod	5	Mathews		ET	T.D. 1177	Dry
Sentinel	1	Elliott		LAL	T.D. 1347	Dry
Smart	1	Hammons		Sims	T.D. 1930	Dry
Tannehill et al		-Mathews		ET	T.D. 1253	Dry

Throckmorton County

McCurdey et al	1	Reynold		WB&M	T.D. 2008	Dry

NORTH TEXAS

Archer County

Gulf Prod	1	Hayter		TE&L	1385-1896	80
Gilliland et al	1	Roach et al		TE&L	1243-1264	65
Arco	3	Perkins et al.		Denton Co. Sch.	623-631	30
Arco	2	Perkins		Denton Co. Sch. Ld.	626-634	20
Stumpf et al	3	Perkins et al		Denton Co. Sch. Ld.	1000-1007	60
Empire	2	Parkey		H&TC	1709-1710	75
Panhandle	2	Colgan		Martin	T.D. 1515	Dry
Steed et al	1	Perkins et al		Denton Co. Sch. Ld.	T. D. 1800	Dry
Jeffers et al	1	Wilson		H&TC	T.D. 1756	Dry
Donohue et al	1	Tuberville		Carson	T.D. 1550	Dry
Pandem et al	1	Harris		Harris	T.D. 1430	Dry
Burton	1	Peters		I&GN	T.D. 750	Dry

Cooke County

Robinson	7	Keelzer		Scott	1304-1336	20
Abernathy et al	2	Hundt		Gooley	T.D. 1915	Dry

Montague County

Lesh-McCall et al		-Mealey		Pettitt	T.D. 2335	Dry

Wichita County

Texas	2	Waggoner		GC&SF	1355-1371	4
Omohundro	13	Pace		Scott	1215-1219	327 (17 Hrs.)
Sheldon	1	Hamilton		H&TC	T.D. 2406	Dry

Wilbarger County

Waggoner	2	Waggoner		H&TC	1860-1874	80
Waggoner	1	Waggoner		H&TC	1872-1885	375
Fain-McGaha	5	Waggoner		H&TC	2339-2342	100
Fain-McGaha	8	Waggoner		H&TC	2325-2357	48
Cosden	15	Waggoner		H&TC	2292-2311	150
Waggoner	2	Waggoner		H&TC	2346-2260	175
Texas	5	Waggoner		H&TC	2403-2406	510
Lawson	3	Waggoner		H&TC	1914-1920	150
Fain-McGaha	8	Waggoner		H&TC	2380-2392	1000
Fain-McGaha	7	Waggoner		H&TC	2392-2405	1500
Fain-McGaha	6	Waggoner		H&TC	2404-2412	1750

Young County

Underwood Drlg. et al.		-Benson		TE&L	T.D. 1018	Dry
Strachan	2	Konwenberg		TE&L	T.D. 513	Dry
Brown	1	Dailey		Tynes	T.D. 600	Dry
Allday	1	Speerman		Stoneman	T.D. 612	Dry
Ballyeat et al	1	Thigpen		TE&L	T.D. 553	Dry
Humble	1	Hamilton		TE&L	T.D. 1051	Dry
Woolf	2	Jeffery		TE&L	T.D. 850	Dry

PANHANDLE

Gray County

Wilcox	28	Reynolds		I&GN	2947-2958	125
Shamrock	2	Chapman		Sec-50, Blk-25	T.D. 2860	Dry

Hutchinson County

Pennowa	2	Smith		M&C	2530-2918	60
Phillips	14	Gibson et al.		H&TC	2693-2720	25
Tenms-Dutsch	1	Jordan et al.		I&GN	3086-3113	215
Paramount	3	Sanford		H&TC	2260-2974	3
Bivins et al	1	Bost		TT	1560-3223	70M
Phillips	6	Johnson		H&TC	2669-2720	500
Phillips	5	Johnson		H&TC	2679-2707	400

Moore County

Amarillo	1	Crawford		PMC	2590-3025	12M

Potter County

Amarillo	1	Bivins		D&P	2435-2546	35½M

WEST TEXAS

Crockett County

Link	1	Peck		H&TC	T.D. 1735	Dry
Gulf Prod	1	Thompson		I&GN	T.D. 2831	Dry
Tidal	1	Univ.		Univ.	T.D. 2567	Dry

Howard County

California	5	Foster		T&P	2781-2900	100
Goodly	5	Hooks		W&NW	1835-1861	100 (12 Hrs.)
Pure	5	Chalk		W&NW	1688-1703	125
Marland	3	Chalk		W&NW	1705-1716	150

Irion County

Whittmyer	2	Myer		GC&SF	T.D. 1350	Dry

Menard County

Carpenter et al	2	Kothman		Sec-22	T.D. 660	Dry

Pecos County

Roxana	7	Smith		TC	1480-1644	61 (1 Hr.)
Mid-Kansas	2	Yates		Sec-34½	1126-1287	120 (1 Hr.)
Mid-Kansas	51	Yates		Sec-34½	1187-1240	95 (1 Hr.)
McMann	1	Smith		TC	1515-1587	200
Mid-Kansas	3	Yates		Sec-34½	1080-1277	105 (1 Hr.)
Bateman-Price	1	River Bed		....	T.D. 1514	5
Mays et al	1	Perry		Sec-1, Blk-2	T.D. 2085	Dry

Upton County

Texas	1	Cordova U. Lds.		H&TC	2120-2322	15

Winkler County

Atlantic et al	7	Hendricks		PSL	2781-2840	7000
Atlantic	1	Lemar		Sec-46, Blk-26	2685-2750	30M
Gulf Prod	8	Hendricks		PSL	2925-3045	18000
Humble	1	Hendricks		PSL	2841-3163	400
Humble	7	Hendricks		PSL	2950-2970	100
Republic Prod	2	Hendricks		PSL	2855-2895	53
Skelly	3	Hendricks		PSL	2678-2715	9360
Skelly	5	Hendricks		PSL	2728-2754	19200
Southern Crude	T671E1	Hendricks		PSL	2975-3002	100
Southern Crude	T671E2	Hendricks		PSL	2743-2960	330
Southern Crude	T683A1	Hendricks		PSL	2446-2745	800
Southern Crude	T88F2	Hendricks		PSL	3000-3030	700
Southern Crude	T88K3	Hendricks		PSL	2826-2870	3849
Southern Crude	T88M7	Hendricks		PSL	2795-2800	1701
Southern Crude	T89A3	Hendricks		PSL	3002-3055	450

Completions in North Louisiana and Arkansas, Week Ended July 26, 1928

Louisiana—Bossier Parish—Cartersville

Company	Well	Location	Depth	Yield
Ark. Nat. Gas Co.	Bolinger No. 2	38-23-11	3037	32M gas

Bossier Parish—Elm Grove

Palmer Corporation	McDade No. 1	13-17-12	965	48M gas

Caddo Parish—Pine Island

Dixie Oil Co.	Robertshaw No. 93	14-21-15	1713	20 bbls.

Webster Parish—Cotton Valley

Humble O & R Co.	Davis No. 6	14-21-10	4700	4M gas

Caddo Parish—Shreveport

Empire Gas & Fuel Co.	H. Nicholson No. 1	33-17-14	4600	dry, aband.

Winn Parish

Humble O & R Co.	Tremont Lbr. Co. No. 2-A	21-10-1W	1447	dry, aband.

Morehouse Parish

Cons. Carbon Co.	Fee No. 3	9-20-4E	2146	7M gas

Ouachita Parish

Palmer Corp	Fee No. 4	24-19-4E	2216	6M gas

Richland Parish

S. D. Hunter	C. G. Pardue No. 1	21-16-6E	2440	50M gas

Ouachita Parish

J. P. White, Trustee	Schmidt No. 1	3-15-4E	3017	dry, aband.

East Texas—Panola County

Company	Well	Location	Depth	Yield
S. H. Gardner et al.	G. E. Brumble No. 2	Jordan HRS	975	5M gas
Magnolia Pet. Co.	T. C. Adams No. 1	Lawless HRS	3202	dry, aband.
Magnolia Pet. Co.	S. D. Swan No. 2	Lawless HRS	1072	2M gas

Arkansas—Stephens

E. C. Laughlin	E. H. Morgan No. 1	22-15-19	2253	10 bbls.

Union County—Rainbow City

O. W. Estes	Rowland No. 3	14-17-14	2768	20M gas
H. L. Hunt	Gregory No. 5	15-17-14	3219	65 bbls.
E. M. Jones	A. W. Perdue No. 1	34-16-14	3392	dry, aband.
Magna Prod. Co.	Rowland C-1	14-17-14	3210	300 bbls.
Marr & Hoosier	Hicks No. 1	16-17-14	3113	junked, aband.
Ohio Oil Co.	M. E. Lochner No. 3	11-17-14	3219	400 bbls.
Ohio Oil Co.	G. T. Townsend No. 1	10-17-14	3226	30 bbls. 25M gas
Oil Well Corp.	W. H. Perdue A-2	10-17-14	3275	175 bbls.
Root Refineries	F. F. Gregory No. 1	10-17-14	3270	10 bbls.
Root Refineries	J. M. Gregory No. 1	15-17-14	3207	salt water, aband.
Skelly Oil Co.	W. H. Perdue No. 2	10-17-14	3247	325 bbls.

Completions in Oklahoma and Kansas, Week Ended July 28, 1928

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Magnolia	9	SWc SE NE 19-1-3 W	2927-3220	25
Simpson-Fell	1	NWc SE SE 19-1-3 W	3080-3455 OWD	55
Simpson-Fell	5	SEc SW NW 10-4-2 W	1733-1950	175

Creek County

Company	Well No.	Location	Depth	Init. Prod.
Kennedy-Horner	4	NWc NE SW 24-18-11 E	1855-1866 OWD	25
Whitten-Wilcox	4	NWc SE NW 11-17-10 E	1554-1563	1M
Ellwood et al	5	CNL NW NE 9-17-11 E	1697-1766	12
Lebow	1	SWc SE NW NW 17-17-7 E	2724-2747	215
Tibbens	37	NEc SE NE SW 30-15-9 E	T.D. 3830	Dry

Grady County

Company	Well No.	Location	Depth	Init. Prod.
Oklahoma Nat'l	4	SWc NE SW 23-5-8 W	1970-2311	19M
Noble et al	6	SWc NE NW 35-5-8 W	T.D. 2476	4M
Commerce Dev	2	SEc NW SW 13-4-8 W	T.D. 2390	5M
The Texas	3	SWc SE NW 13-4-8 W	T.D. 2361	22M
Watchorn	3	NWc SW NW 13-4-8 W	T.D. 2260	8M

Grant County

Company	Well No.	Location	Depth	Init. Prod.
Ostot Dev	1	NEc 6-28-3 W	T.D. 4518	Dry

Hughes County

Company	Well No.	Location	Depth	Init. Prod.
I. T. I. O	2	SWc NE SW 8-5-8 E	2646-2665	156

Jefferson County

Company	Well No.	Location	Depth	Init. Prod.
McGinley et al	3	NEc NW 20-7-5 W	770-780	25
Bridwell et al	4	NEc SW SW 24-6-6 W	1666-1674	150

Kay County

Company	Well No.	Location	Depth	Init. Prod.
Ingram et al	1	CWL E½ NR NW 31-27-2 E	610-618	1M
Texas	1	SWc SE NW 29-25-1 W	4486-4516	140
Waggoner et al	1	CNE SW 18-25-2 E	3928-3938	203

Marshall County

Company	Well No.	Location	Depth	Init. Prod.
Smith	2	SWc NE 24-5-5 E	576-580	50

Muskogee County

Company	Well No.	Location	Depth	Init. Prod.
Bryan-Emery	5	CWL SE NE 8-15-15 E	1590-1595	50
Selby	8	CN½ S½ NW 35-15-15 E	1525-1534	10
Dodge et al	2	NEc SE NW NE 17-14-16 E	1579-1590	15
Brennan	2	NWc SW NW 6-14-19 E	T.D. 560	Dry

Okfuskee County

Company	Well No.	Location	Depth	Init. Prod.
Mid-Continent	1	SEc NW NE 31-11-11 E	3071-3092	9M

Okmulgee County

Company	Well No.	Location	Depth	Init. Prod.
Colvin et al	1	NWc SW NW 35-12-12 E	T.D. 2572	Dry
Jolly	1	SEc NW NW NE 32-15-14 E	T.D. 1770	Dry
Wallace	6	CWL NW SE 14-14-14 E	T.D. 1756	Dry
Sharpe et al	1	NEc SE NE 17-14-14 E	T.D. 1885	Dry

Osage County

Company	Well No.	Location	Depth	Init. Prod.
Phillips	6	NEc SW SE 1-27-5 E	T.D. 3025	Dry
Sheeders	1	CSE 7-23-10 E	T.D. 2640	Dry
Osage Synd	13	SEc SW SW NW 7-21-9 E	T.D. 518	Dry
Kewanee	3	NWc NE SW 21-27-6 E	2882-2954	312
Kewanee	5	SWc NE SW 21-27-6 E	2875-2941	160
Kewanee	12	NEc SE NE 29-27-6 E	2905-2965	72
Gray	3	CSE 34-23-8 E	1933-2637	537&15M
Dunnigan et al	5	SEc SW 17-24-9 E	2109-2154	5
Osage Synd	12	NWc SW SW NW 7-21-9 E	517-532	10
Moore-Ohio Osage	4	CNL S½ SW 9-21-9 E	382-392	10
Devonian	2	CSW 30-21-10 E	1564-1569	100
Sand Springs Home	9	CWL E½ W½ NE 5-20-11 E	1782-1810	35

Pontotoc County

Company	Well No.	Location	Depth	Init. Prod.
LaSalle	4	CE½ SW 28-5-5 E	2212-2428	50
Westheimer-Daube	3	SEc 8-5-8 E	2418-2433	140
American	1	SWc NE SE 22-5-6 E	T.D. 3342	Dry
Whitney et al	2	SWc SE 20-5-8 E	T.D. 3130	Dry

Pottawatomie County

Company	Well No.	Location	Depth	Init. Prod.
Westheimer-Daube	2	NWc SW NW 24-7-4 E	4244-4268	3997

Seminole County

Company	Well No.	Location	Depth	Init. Prod.
Gypsy	2	NEc 13-8-6 E	4350-4367	71
Gypsy	1	SWc SE 33-8-6 E	4476-4478 OWD	2936
Slick	1	SWc 12-5-7 E	2621-2630	25M
Mid-Continent	13	SEc NW SE 7-5-8 E	2690-2758	700
Gypsy	3	SEc NW 18-5-8 E	2652-2716	648
Sunray	1	NWc SE 18-5-8 E	2554-2733	1000
Sunray	2	NEc NW SE 18-5-8 E	2542-2611	1015
Searight	1	NEc SE NE 1-9-5 E	T.D. 3010	Dry
Continental	2	SWc SE SW 25-8-6 E	T.D. 4365	Dry
Ramsey	3	CSW NW 31-8-8 E	T.D. 1770	Dry

Stephens County

Company	Well No.	Location	Depth	Init. Prod.
Franklin	6	NWc NE SE 12-2-8 W	T.D. 2250	Dry
Petroleum Prod	6	SEc NW SW 7-2-7 W	T.D. 2200	Dry
Mid-Kansas	4	SEc NW NW 19-2-7 W	T.D. 1822	Dry
Prairie	3	NWc SE SW 7-2-7 W	1532-1549 30 (12 Hrs.)	
Amerada	2	NEc SW 12-1-4 W	2618-3145	175
Franklin	3	SWc SE SE 12-1-4 W	3134-3146	70
Magnolia	6	NEc NW 13-1-4 W	2063-2065	14M
Magnolia	1	NE NW NW 24-1-4 W	2985-2995	89

Tulsa County

Company	Well No.	Location	Depth	Init. Prod.
Glidden	1	CNL NW SW 35-19-13 E	2045-2060	½M
Thompson et al	5	CNL SW SW 5-16-13 E	T.D. 2209 Dry	OWD

Wagoner County

Company	Well No.	Location	Depth	Init. Prod.
Mack Drlg	1	SEc NW 15-17-15 E	T.D. 1960	Dry
Minshall et al	1	NWc SE 6-19-15 E	1079-1088	6M
Bu-Vi-Bar	4	NEc SE NW SW 29-18-15 E	1222-1241	25

KANSAS

Coffee County

Company	Well No.	Location	Depth	Init. Prod.
Nolan-Son	1	SWc NW NW 23-22-13 E	T.D. 1902	Dry

Elk County

Company	Well No.	Location	Depth	Init. Prod.
Murfin et al	1	SEc NW SW 10-31-10 E	1970-2004	30

Greenwood County

Company	Well No.	Location	Depth	Init. Prod.
Empire	14	NWc SW NE 25-22-12 E	1734-1740	202
Skelly	4	.....	1647-1740	400
Sheedy et al	1	SWc 1-23-9 E	2403-2418	20
Mendenhall et al	1	SWc NW NW 9-25-13 E	1456-1483	25
Eisenhour	1	NEc NW SW 36-23-10 E	T.D. 2225	Dry
Murphy et al	1	SW SE SE 31-24-9 E	T.D. 2408	Dry
Rockhill et al	1	SWc NE 21-26-13	T.D. 1624	Dry

Marion County

Company	Well No.	Location	Depth	Init. Prod.
Loreaux et al	4	NWc NE NW 23-17-4 E	T.D. 2420	Dry
Phillips	1	SWc 13-17-4 E	2346-2406	30

Morris County

Company	Well No.	Location	Depth	Init. Prod.
Nichols	1	NEc SW SE 11-17-6 E	1410-1415	½M
Bopit et al	1	SWc NE 31-16-5 E	T.D. 2345	Dry

McPherson County

Company	Well No.	Location	Depth	Init. Prod.
Tatloyd	1	C NW SE 31-18-2 W	2936-2953	7M

Sumner County

Company	Well No.	Location	Depth	Init. Prod.
Dickey et al	1	C SE SW 18-35-1 E	T.D. 4041	Dry
Harris-Haun et al	1	SWc SE 14-34-2 E	3772-3783	130

Drilling Operations in Texas, Month Ended July 14, 1928

District	July 14 Loc. & Rigs	Drg.	S.D.	Total	June 15 Loc.	Rigs	Drg.	S.D.	Total
Central	122	230	174	526	..	83	193	243	519
Panhandle	40	79	71	190	..	45	78	69	192
N. Central	48	136	29	213	..	75	105	23	203
West	148	262	123	533	...	161	251	120	532
Laredo	1	25	19	45	..	1	25	19	45
TOTAL TEXAS	359	732	416	1,507	...	365	652	474	1,491

Drilling Operations in Oklahoma and Kansas, Week Ended July 28, 1928

	July 28 Loc.	Rigs	Drg.	S. D.	Week Ended Total	July 21 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Osage	7	8	31	3	49	5	10	36	2	53
Bristow-Cushing	5	3	36	6	50	5	5	30	5	45
North Oklahoma	6	6	55	29	96	6	8	54	27	95
South Oklahoma	11	7	84	26	128	9	8	88	24	129
Muskogee	..	5	53	23	81	..	7	52	19	78
Okmulgee-Bristow	14	25	61	20	120	10	23	64	27	124
Seminole Dist	32	71	283	20	406	30	60	281	18	389
Total Oklahoma	75	125	603	127	930	65	121	605	122	913
KANSAS	83*	...	154	67	304	...	83	149	62	294
GRAND TOTAL	158	125	757	194	1,234	65	204	754	184	1,207

*Location and Rigs combined.

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended July 28, 1928

OKLAHOMA

Beckham County

Company	Well No. Farm	Location
C. & H. Pet	1-Barnes	NWc NE 32-9-22 W
Martin	1....	NWc SE 1-8-25 W

Cotton County

Company	Well No. Farm	Location
Perkins et al	1-Chambers	SWc 1-2-10 W
Crane	1-Sturgeon	C NW NE 33-2-9 W

Creek County

Company	Well No. Farm	Location
Magnolia	16-Musselman	CSL SW NE 8-18-7 E
Sinclair	12-Long	CSL SW SW 9-18-7 E
LeBow	10-Tiger	SEc NE NW 17-17-7 E
Tidal	3-Robinson	NEc SW SE 20-17-7 E
Silurian	1-Jackson	SEc 30-17-7 E
Skelly	4-Fife	SWc SE SW 15-14-8 E
Lynch	1-Grayson	C NE NW 4-18-12
Shaffer	1-Page	NEc SE SE 34-16-10
Sunray	1-Froe	SWc NW SW 35-16-10
Shaffer	1-Steil	NEc SE 7-16-11
Continental et al	1-Unallotted	SWc 7-16-12
Gilliland et al	1-Kimble et al.	NEc SW SE 21-14-10

Grady County

Company	Well No. Farm	Location
Commerce Dev	3-Pond	SWc NW SW 13-4-8 W

Jefferson County

Company	Well No. Farm	Location
Bridwell	5-Spring	CWL SE SW 24-6-6 W
Gypsy	2-Busby	SEc SW SW 17-7-5 W
McGinley et al	1-Trout	SEc SW NW 17-7-5 W
McGinley et al	4-Clark	SWc SE SE 17-7-5 W
Lesh-McCall	5-Peniston	NEc SW SE 17-7-5 W
McGinley et al	2-Pfile	NEc NW NW 20-7-5 W
Bunn-Marvin Drlg.	1-Smith	NEc SE NE 24-7-6 W

Kay County

Company	Well No. Farm	Location
Carter et al	1-Mefford	C SE NW 18-29-1 E
Tidal	4-Cole	C NW SE 18-29-1 E

Kiowa County

Company	Well No. Farm	Location
Walker	1-Foster	NWc NE 18-6-16 W

Logan County

Company	Well No. Farm	Location
Crosbie	2-Shaffer	NEc NW 20-19-4 W

Marshall County

Company	Well No. Farm	Location
Smith	3-Null	SEc NW 24-5-5 E

Mayes County

Company	Well No. Farm	Location
Bradley et al	1-Bruster	NWc NE 3-21-16 E

Muskogee County

Company	Well No. Farm	Location
Garison	1-Rector	SEc N½ NE SW 20-15-17 E
Shaffer-Heflin	1-Robeson	SEc SE 36-15-18 E OWD
Foltz	4-James	CNL NE NE 19-14-17 E
Tidal	11-Roberts	CWL SE SE 6-14-18 E
Blackwood et al	1-Lot-35, Blk-14	C SW NE NW 6-14-19 E

Osage County

Company	Well No. Farm	Location
Knupp	8....	NEc SW NE SW 36-27-11
Pettigrove	6....	NEc NW SE 11-23-11
Tidal Osage	17....	NEc SW 34-22-10
Moore-Ohio Osage	.....	NEc SW SW 9-21-9
Moore-Ohio Osage	.....	N½ N½ SW 9-21-9
Moore-Ohio Osage	8.....	SWc NE SW 9-21-9
Home	10.....	NEc SW NE 5-20-11

Okmulgee County

Company	Well No. Farm	Location
Rebold	1-Blunt	SWc SE 3-14-11
Sheridan	3-Chase	SWc NE SW 8-15-12
Decius et al	1-Charles	NWc NW 12-15-14 E

Pontotoc County

Company	Well No. Farm	Location
Homaokla	13-McCall	CNW NE 17-5-8 E
Ramsey	4-Millner	SEc 18-5-8 E OWD

Pottawatomie County

Company	Well No. Farm	Location
Phillips	1-Sparkman	SEc SW 15-8-4 E
Magnolia	1-Fyke	NW NE SE 20-7-5 E
Magnolia	1-Fyke	NEc NW SE 20-7-5 E

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended July 28, 1928 (*Continued*)

Company	Well No. Farm	Location
Seminole County		
Magnolia	1-Youtz	NEc SE SW 20-7-5 E
I. T. I. O.	1-Weens	NWc SW SW 21-7-5 E
Independent	1-Blandin	NEc SW 30-7-5 E
Phillips	3-Stahl	SWc NW NE 30-7-5 E
Slick	1-Smith	NWc SE 30-7-5 E
Furhman	1-Fay	SEc NW SW 27-11-6 E
Magnolia	1-Gillim	NWc NE SW 13-9-5 E
Texas	1-James	NWc SE 6-9-6 E
Schwartz et al.	1-Mitchell	NEc SE SW 9-9-6 E
Mid-Kansas	1-Moore	NWc SW SE 7-8-6 E
Magnolia	3-Vanbuskirk	NEc NW SE 9-8-6 E
Magnolia	8-Hammond	NWc NE 10-8-6 E
Gypsy	1-Brown	SEc SW 33-8-6 E
Gypsy	2-Brown	SWc SE SW 33-8-6 E
Phillips	1-Dixon	SEc SW 31-8-7 E
Snowden-McSweeney	3-Tiger	SEc NW NW 13-7-6 E
Independent	4-Tewee	NWc SE 14-7-6 E
Independent	5-Tewee	NEc NW SE 14-7-6 E
Magnolia	2-Harjo	SWc NE NE 14-7-6 E
Sinclair	2-Tewee	SWc NE 14-7-6 E
Independent	3-Williams	SWc NE NE 15-7-6 E
Independent	3-Harris	SEc NW NW 23-7-6 E
Independent	4-Harris	NWc SE NW 23-7-6 E
Slick	1-Harjo	NWc NE 11-5-6 E
Louisiana	4-Punluste	SEc SW SW 8-5-8 E
Sunray	3-Nichey	SWc NW SE 18-5-8 E
Sunray	4-Nichey	SEc NW SE 18-5-8 E
Stephens County		
American P. Line	2-Hizer	NEc SW 31-1-8 W
Carter	2-Simpson	SWc SE 34-1-8 W
Melton et al.	4-Nigh	SEc NW NW 34-1-8 W
Pace et al.	3-Bristowe	SEc NW NW 18-2-7 W
Tulsa County		
Holmes et al.	1-Thompson	C SW SE 21-19-10
Sheridan	3-Minshall	NWc 27-19-11
Mays-Kayser	1-Franklin	C NE NE 35-19-11
Wagoner County		
Minshall et al.	1-Rogers	SWc NE 6-19-15
McCracken	4-Childers	SWc NE 21-18-17 E
McAdams-Ford	1-Colbert	CWL NW NW 3-16-18 E
Woods County		
Miller et al.	1-Copenhaver	NWc 18-24-13 W
Woodward County		
Billey	1-Wyatt	C SE 9-23-20 W

KANSAS

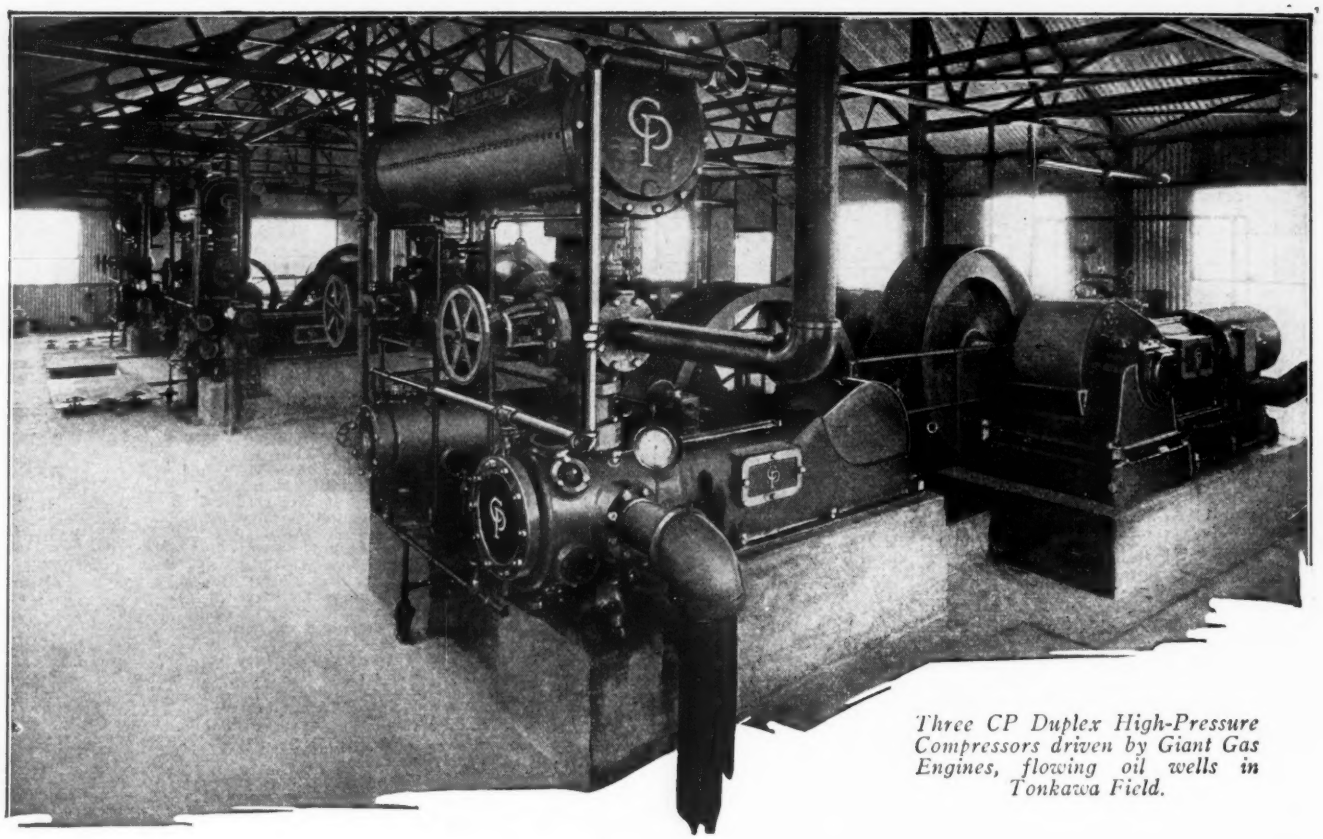
Company	Well No. Farm	Location
Barber County		
Shaffer et al.	2-Carter	C NE SE 11-33-13 W
Butler County		
Garden et al.	4-Sluss	NEc SW NE 6-27-6 E
Empire	1-Willets	NEc SE SW 22-27-5 E
Empire	1-Willets	NEc SE NW 27-27-5 E
Mohawk	4-Palmer	NWc SE NE 6-27-6 E
Mohawk	5-Palmer	CEL SE NW 6-27-6 E
Cowley County		
Elliott	1-Shannon	SEc 18-31-5 E
Lewis Prod.	1-Gaston	NEc SE SW 30-31-6 E
Grubb-Cobb	1-Balles	NWc SE 34-34-7 E
Elk County		
Minnehoma	3-Denton	SWc NW SW 3-31-8
Litterel	1-Townsite Lot-3, Blk-27	NEc SW SW 10-31-10 E
Denton-Morrow	1-Elstan	NWc 15-31-10 E
Greenwood County		
Murphy	7-Green	SEc NW NW 14-23-9 E
Haverhill	18-Inthurn	C N½ SE 4-23-13 E
Faulkner et al.	1-Knox	CSL SW NE 7-23-13 E
Parrish et al.	1-Provo	SWc NE 35-24-12 E
Derby	1-Morris	CWL NW NW 28-24-13
Murphy	5-Olson	SWc NW SE 6-25-9
Smith et al.	1-Herman	NEc SE NW 8-25-12 E
Parrish	1-Harris	SWc SE 9-25-12 E
McGinnis et al.	1-McNall	NEc SW 10-25-12 E
Marion County		
Phillips	1-Peterson	SWc NE SE 22-17-4
Rooks County		
Burford-Brimm et al.	1-Bora	NEc SW SE 22-9-17 W
Sumner County		
Roxana	6-Taton	SEc NW 36-31-2 E
Washoma	3-Bussard	NEc SW 36-31-2 E
Murcher et al.	1-Hendrix	NEc NW NE 14-34-2 E
Wallace County		
Mentor et al.	1-Parker	SWc 8-12-41 W
Woodson County		
Fields-Cross	1-Northmeyer	NEc SW 30-25-14 E

TEXAS
NORTH & NORTH CENTRAL

Company	Well No. Farm	Location	Survey
Archer County			
Gilliland et al.	1-Hayter	Sec-2423, Abst-588	TE&L
Steed-Kimmel	1-Andrews	Abst-678	Yearly
Stumpf-Hines	4-Perkins	League-3, Blk-13	Denton Co. Sch. Ld.
Turner et al.	1-Lyles	Sec-2, Abst.-1231	SP
Burns	1-Deskin	Sec-10, Blk-5	Clark et al.
Pandem	1-Young	Sec-2432	TE&L
Johnson et al.	1-Wilson	Sec-70	ATNCL
Arco	4-Perkins	League-3, Blk-14	Denton Co. Sch. Ld.
Brown County			
Brown et al.	1-Shore	Blk-627	Bannister
Bebout et al.	1-Shields	....	Montez et al.
Clark Buffalo	3-Keesee	....	Lewis
Williamson et al.	4-Eddington	Blk-141	Mitchell
Daniels et al.	1-Turner	Blk-55	Duncan
Owens et al.	1-Sewalt	Blk-15	Steiner
Sinclair	5-Eubanks	Blk-141	Mitchell
Gutzman et al.	3-Stanley	Blk-139	Smith
Coleman County			
Simms	1-Braman	Blk-659	Sprague
Logan-Carter	1-Burke	Blk-655	Williams
Acrey	1-Stearns	Blk-193	Perry
Price	1-LeFore et al.	Sec-70, Blk-1	GH&H
Kingwood	1-Smith	Sec-7, Blk-1	GH&H
Derby	6-Jennings	Blk-94	Lipscomb
Amerada	1-Morris	Sec-10, Blk-722	Webber
Midsun	1-McClellan	Blk-617	McDonald
Barnsdall	1-Sackett	Sec-19	HT&B
Eastland	2-Morris	Sec-14, Blk-722	Webber
Ross Drlg. et al.	1-Strickland	Blk-1	WC
Sullivan	1-Kirkpatrick	Sec-3, Blk-495	Cleveland
Midsun	1-Manes	Blk-49	Pool
Charter	3-Crump	Sec-13, Blk-665	Scott
Golston et al.	2-Moody	Sec-12, Blk-665	Scott
Concho County			
Exploration	2-Hartgrove	Blk-240	Schurch
Cottle County			
Sun	1-Yarborough	Sec-551, Blk-H	WTNW
Eastland County			
Hazlip et al.	1-Webb	Sec-12, Blk-2	H&TC
Haskell County			
Hill	1-Proctor Bros.	Abst-350	Rodriquez
Jack County			
Ellis et al.	6-Ellis et al.	Blk-4, Abst-877	Williams
Northwestern Sup.	6-Richards	Blk-11, Abst-93	BBB&C
Jones County			
Phillips	2-Sharp	Sec-14, Blk-19	T&P
Montague County			
Godford	1-Campbell	.....	Gaston
Navarro County			
Hughes et al.	1-Leahlyter	.....	Broyles
Humble	2-Jones	.....	Roberts
Palo Pinto County			
Peters et al.	1-Weldon	Sec-4, Abst-138	CEPI&M Co.
Runnels County			
Nourse et al.	1-Cramer	.....	Taylor
Shackleford County			
Hope	1-Davis	Sec-33, Blk-12	T&P
Hope	1-Powers	Sec-34, Blk-12	T&P
Roeser-Pendleton	72A60-Cook	Sec-60	ET
Roser-Pendleton	5A61-Cook	Sec-61	ET
Roeser-Pendleton	73A60-Cook	Sec-60	ET
Roeser-Pendleton	5A62-Cook	Sec-62	ET
Roeser-Pendleton	18C60-Cook	Sec-60	ET
Big States	6-Russ	Sec-27, Blk-11	T&P
Sterling	1-Whitney	Abst-1696	Leahy
Sterling	1-Whitney	Sec-8	HT&B
Texas	1-Sedwick	Sec-1	ET
Throckmorton County			
Christie Bros.	1-Dicky Bros.	Sec-685	TE&L
McCurdy et al.	2-Reynolds et al.	Sec-19	AB&M
Simmons-Tidal	1-Thomas	Sec-202	BBB&C
Wichita County			
Clark	1-Blair et al.	Sec-26, Blk-20	KWVFL
Cable et al.	1-Williams	Blk-5 Abst-192	McCool
Omoheindro	14-Pace	.....	Scott
Sheldon	7-Cohn	Blk-327	Waggoner
Rayzar	1-Wigley	Abst-51	Tap
Hammon et al.	1-McCarty	Abst-447	Eaves
Hammon et al.	3-Mitchell	.....	Lewis
Wilbarger County			
Barkley-Meadows	4-Waggoner	Sec-5, Blk-5	H&TC
Cosden	25-Waggoner	Sec-31, Blk-4, Abst-87	H&TC
Fain-McGaha	11-Waggoner	Sec-24, Blk-4	H&TC
Fain-McGaha	12-Waggoner	Sec-24, Blk-4, Abst-1953	H&TC
Lynch	1-Waggoner	Sec-6, Blk-17, Abst-1696	H&TC
Waggoner Farm	6-Waggoner	Sec-5, Blk-5	H&TC
Lawson	6-Waggoner	Sec-30, Blk-4, Abst-1487	H&TC
O'Neil	1-Waggoner	Sec-30, Blk-4, Abst-1487	H&TC
Texas	1-Waggoner	Sec-1, Abst-534	SP
Waggoner	7-Waggoner	Sec-30, Blk-4, Abst-1487	H&TC
Young County			
Wolfe	1-Whitehead	Sec-166	TE&L
Hall et al.	1-Davis	Sec-1487	TE&L
Gwynn	1-Kunkel	Sec-4	BBB&C
Kleiner et al.	4-Hawkins	Sec-1914	TE&L
Atlantic et al.	4-Graham	Sec-3401	TE&L

WEST TEXAS AND PANHANDLE

Company	Well No. Farm	Location	Survey
Coke County			
Lipan	1-Rowlins	Sec-390, Blk-1-D	H&TC
Crane County			
Simms-Atlantic	1-Univ.	NEc Sec-45, Blk-30	Univ.
Gray County			
Dunlap	1-Morse	NW SW NW Sec-2, Blk-26	G&GN
Danciger et al.	1-Shaw	NEc SE SW Sec-5, Blk-1	ACH&B
Howard County			
Marland-Texon	4-Settles	Sec-158, Blk-29	W&NW
Mitchell County			
Campbell	1-Pond	SW NE NE Sec-79, Blk-27	T&P
Pecos County			
Mid-Kansas et al.	4-Yates	Sec-34½	Yates
Gulf Prod.	11-Smith	Sec-28, Blk-194	GC&SF
Gulf Prod.	15-Yates	..... Runnels Co. Sch. Ld.	
Gulf Prod.	16-Yates	..... Runnels Co. Sch. Ld.	
Schumaker et al.	1-Williams	Sec-1, Blk-117	GC&SF
Wohnlick et al.	1-Arnold	Sec-25, Blk-1	GC&SF
Winkler County			
Roxana-Texas	2-Hendricks	NWc Sec-39, Blk-26	PSL
Southern Crude	T671B3-Hendricks	CEL SE Sec-44, Blk-26	PSL
Empire	1-Leck	NW SE SW Sec-3, Blk-74	PSL
Empire	2-Leck	SWc Sec-3, Blk-74	PSL
Southern Crude	T89-B2-Hendricks	SW SE NE Sec-35, Blk-B-5	PSL
Roxana-Texas	5-Hendricks	NEc Sec-40, Blk-26	PSL
Roxana-Texas	6-Hendricks	NEc SE Sec-40, Blk-26	PSL



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Multiple Pumping of Oil Wells

Part I Pumping Powers

By Lester C. Uren

Professor of Petroleum Engineering, University of California

THE subject of multiple pumping will be discussed in two articles. The current article describes the various types of powers used and principles involved in power design and location. In an early issue of NATIONAL PETROLEUM NEWS *will be article two on various transmission devices employed and those used in applying this type of power transmission at the wells.*

PREVIOUS articles of this series have been described in some detail, the power equipment used and methods of power application in the mechanical pumping of oil wells when each well is operated by its own individual motor or engine. We have next to consider the so-called "multiple system" of pumping, in which each well of a group is operated from a single centrally located power plant, with appropriate means for mechanical transmission of the power impulse from the power plant to the various wells of the group.

The central power plant may be equipped with an electric motor or a steam, gas or oil engine, power being transmitted to the individual wells by a system of pull rods or cables which are given a horizontal reciprocating motion. The horizontal motion of the surface pull rods or cables, or "shackle lines" as they are frequently called, is converted into equivalent vertical motion of the sucker rods in each individual well, through the instrumentality of a device called a "pumping jack."

Many different devices are employed for suspending the surface lines so that they may reciprocate freely with a minimum of friction, and so that their direction or extent of movement may be altered to accord with topographic irregularities and with the positions and power requirements of the individual wells. Often more than one well can be operated with a single shackle line.

Multiple pumping permits of operating wells with a minimum of power, and at greatly reduced cost in comparison with the cost of pumping with individual motors or engines. When properly balanced, the weight of the descending rods in some of the wells may actually assist in lifting the rods in others of the group, the fluctuating power requirements characteristic of individually pumped wells, being thus equalized so that the power unit is called upon to furnish a constant torque equivalent only to the average load.

Important economies also result through the operation of a single engine or motor instead of a number of them with mechanical and frictional losses multiplied many fold. When the wells are shallow, as many as 35 may be operated from a single power.

Theoretically, with such a system, the only power necessary is that of lifting oil and overcoming friction and

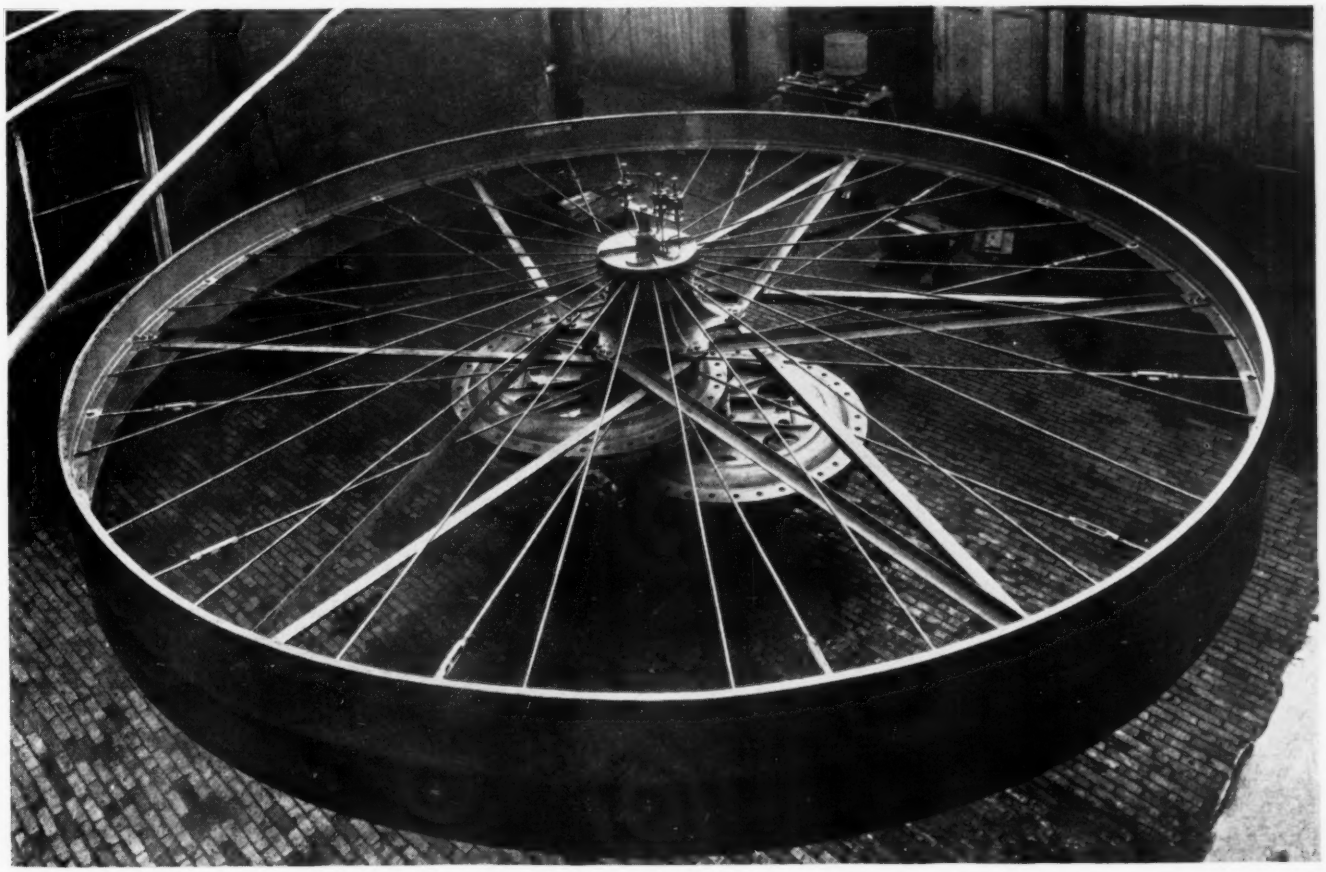

Fig. 1. A large double-eccentric bandwheel driven pumping power. (Photo reproduced by courtesy of Joseph Reid Gas Engine Co.)

inertia of the moving parts of the transmission equipment.

The multiple system of pumping is ordinarily applied only to comparatively shallow wells, though wells as deep as 3500 feet have been successfully handled by this means. Since the equipment provided at the well when this method is used, is not intended for use in pulling and cleaning operations, auxiliary standby or portable pulling equipment must be provided for this purpose.

Because of the irregularity in loading which results when one or more wells of a group must be shut down for repair or cleaning operations, the system is not well adapted to wells in which such interruptions are of frequent occurrence.

The subject of multiple pumping will be discussed in two articles, the present being descriptive of the various types of "powers" used and to the principles involved in power design and location, while the succeeding article will describe the various transmission devices employed and those used in applying this type of power transmission at the wells.

The equipment at the power plant for giving the shackle lines their reciprocating movement, may take either of several forms, but is generally provided with a large belt-driven bandwheel, supported on a vertical shaft so that it may revolve in a horizontal plane.

Attached to the bandwheel hub, and revolving with it on the same vertical shaft, two eccentrics are mounted, 180 degrees apart, each supporting on its outer circumference, an annular slip-ring to which the shackle lines leading to the various wells are attached. Smaller bandwheel powers, designed for lighter service or for the operation of a fewer number of wells, have but one eccentric.

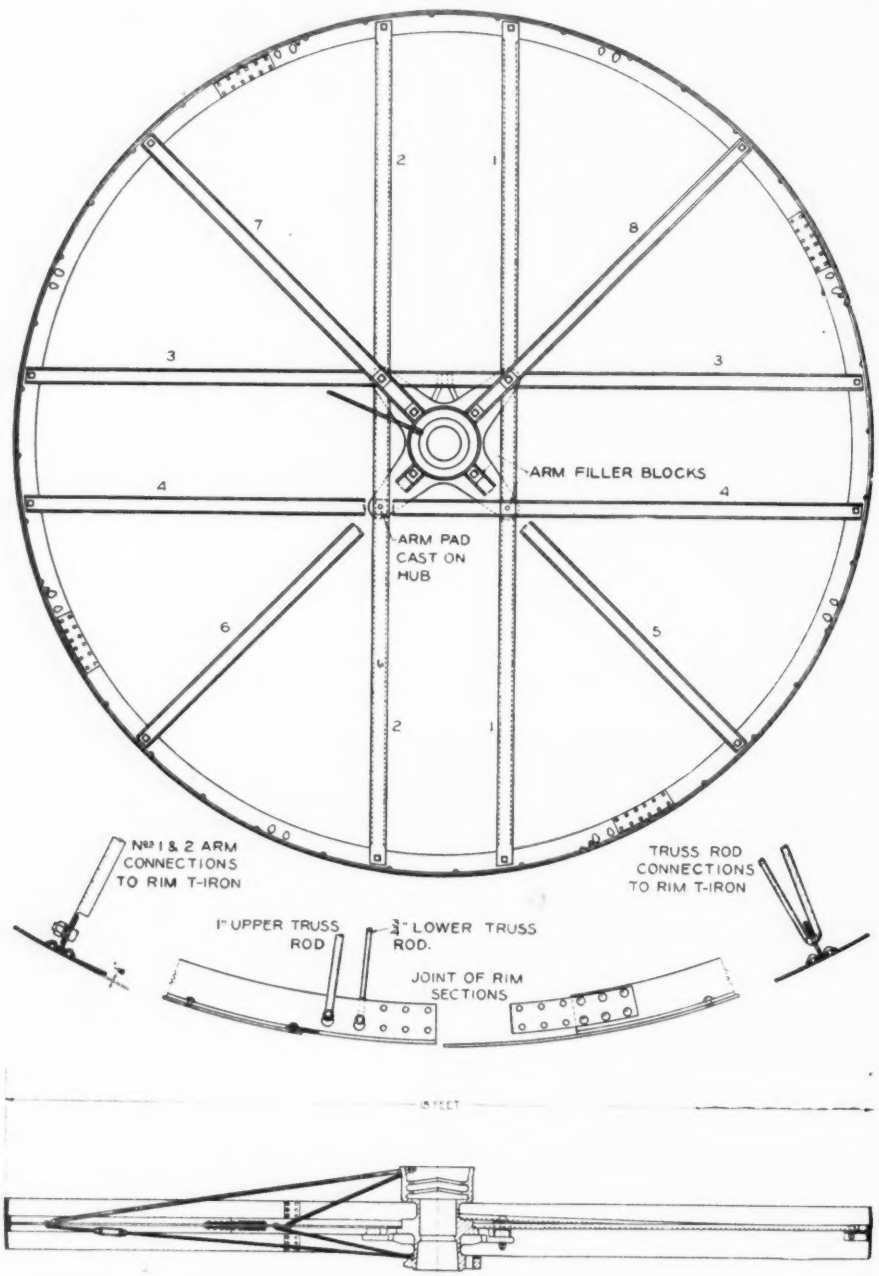
ARM FILLER BLOCKS
ARM PAD CAST ON HUB
Nº 1 & 2 ARM CONNECTIONS TO RIM T-IRON
TRUSS ROD CONNECTIONS TO RIM T-IRON
1" UPPER TRUSS ROD
¾" LOWER TRUSS ROD.
JOINT OF RIM SECTIONS

Fig. 2. Illustrating structural details of a typical bandwheel used in driving a pumping power. (Courtesy of National Supply Co.)

The photograph reproduced in Fig. 1 illustrates the general features of this type of power, and is also of interest in that the power pictured is probably the largest of its kind yet built. Most bandwheel powers are equipped with eccentrics which provides a rod movement of 18 inches or 24 inches, but the one illustrated provides a 36-inch rod stroke.

The bandwheel employed in this type of power must be large in diameter in order that the proper speed reduction may be provided, and so that a uniform torque may be maintained on the eccentrics. The diameter of the bandwheel commonly ranges from 14 to 24 feet, and its face ranges from 16 inches to 28 inches in width depending upon the width of belt necessary for the power to be transmitted. The face of the wheel is preferably crowned to assist in centering the belt.

The greater the stroke provided by the eccentrics, and the greater the power to be transmitted, the larger, generally speaking, should the bandwheel be. Installations of from 25 to 50 horsepower are common.

That illustrated in Fig. 1 is designed for 100 horsepower, and is capable of pumping from depths as great as 3500 feet. In earlier installations, wooden bandwheels were employed, often smaller in size than the dimensions given, but the trend of recent development has been toward the all-steel wheel, which can be made stronger and lighter and better maintains its circular form.

Fig. 2 illustrates the structural details of a typical steel pumping-power bandwheel.

Early designs of bandwheel powers placed the eccentrics above the bandwheel, but more recent practice has shown the underslung type represented in the illustrations herewith, to be preferable. The upper end of the vertical supporting shaft is often supported by three or more stay-rods anchored to concrete supports, but this practice is scarcely necessary in a properly designed and balanced power.

In as much as the drive pulley on the engine or motor revolves in a vertical plane and the bandwheel in a horizontal plane, the belt must be given a quarter turn. Also, because of the large size of the bandwheel and the necessity for avoiding sharp bends in the belt, an exceptionally long belt must be used, necessitating the provision of a belt-tightening device to maintain proper tension and to support the belt in its proper position on the vertical face of the bandwheel.

The photograph reproduced in Fig. 3 illustrates a typical belt-driven

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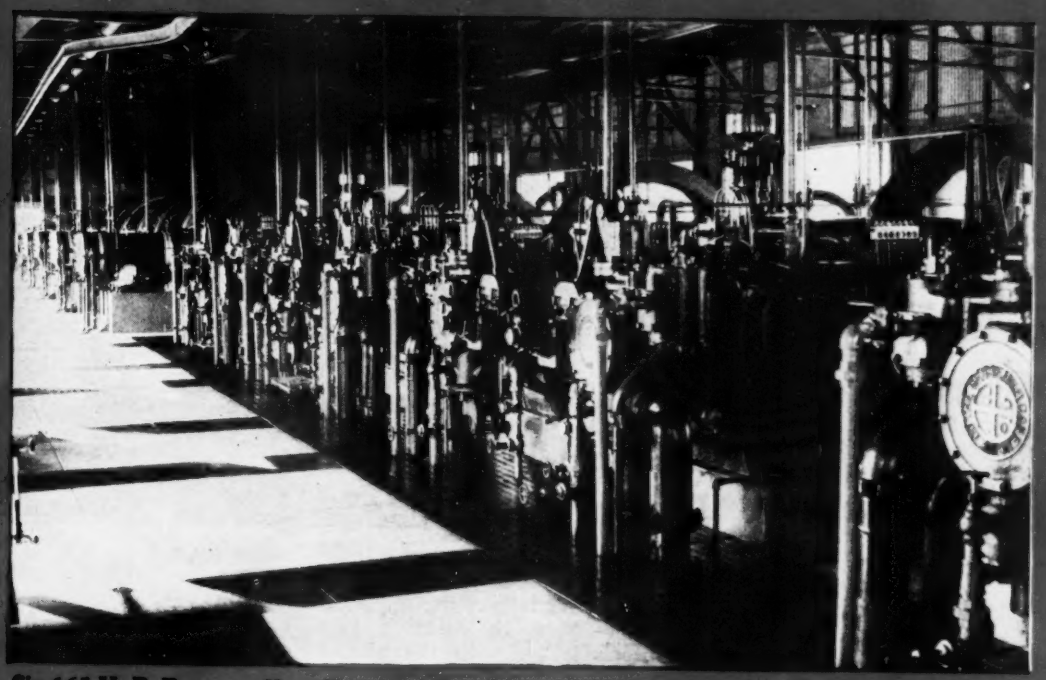

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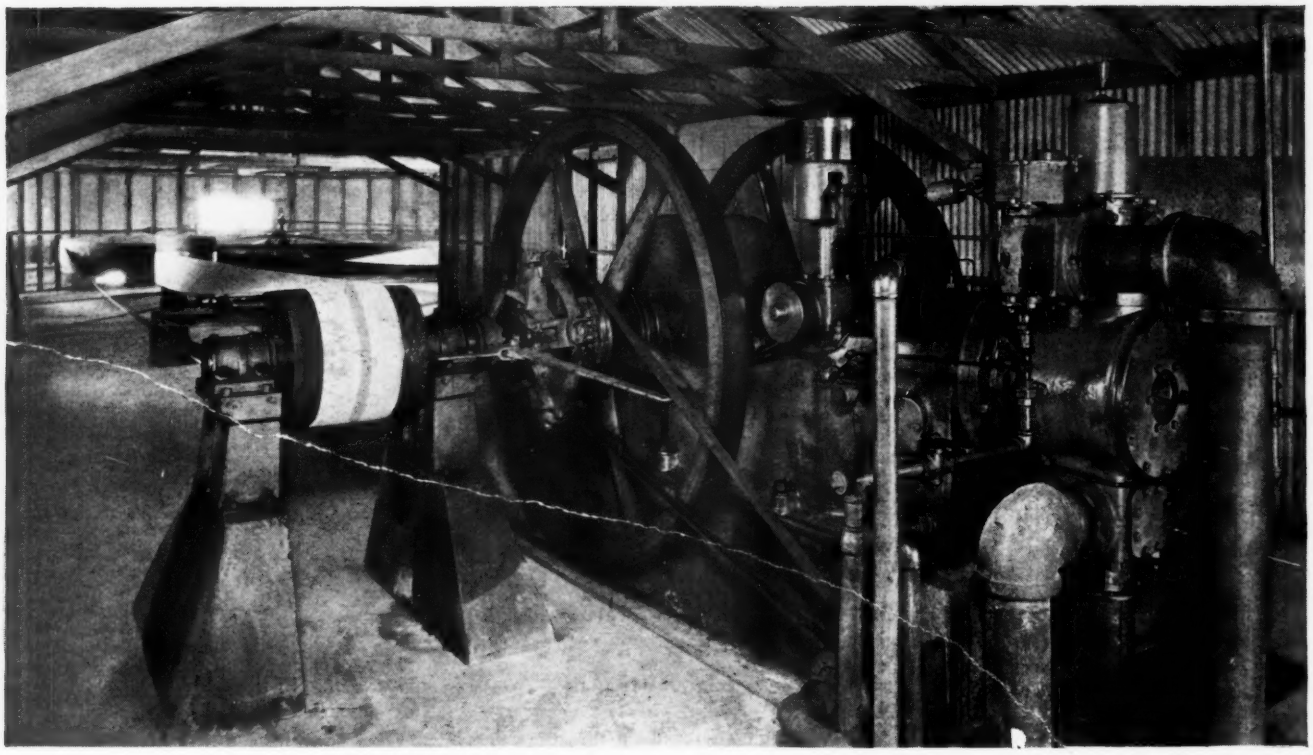

Fig. 3. Bandwheel power driven by Reid 45-H. P. 4-cycle gas engine. (Photograph reproduced by courtesy of Joseph Reid Gas Engine Co.)

bandwheel in which a gas engine is employed as a prime mover, while the photograph of Fig. 4 illustrates an equivalent electric motor drive.

Because of the heavy strain put upon them, the eccentric must be heavily ribbed and bolted securely to the bandwheel hub. The bearing surfaces between the revolving eccentric and the stationary eccentric ring, must be accurately machined and of sufficient width to provide an ample bearing surface.

It is highly important that these bearing surfaces, as well as those between the main supporting shaft bushings and the eccentric and bandwheel turning thereon, be provided with ample lubrication. The more recent designs provide for a continuous flood lubrication of these parts, several gallons of lubricating oil being circulated between the bearing surfaces automatically, with the aid of a small plunger pump actuated by the revolving bandwheel.

Fig. 5 shows an assembly view of the eccentric, bandwheel hub, supporting shaft and base. Fig. 6 illustrates the construction of an eccentric with the slip-ring removed, and a vertical section through the rim of the eccentric and ring. Fig. 7 illustrates the means provided for attaching the pull rods to the slip-rings.

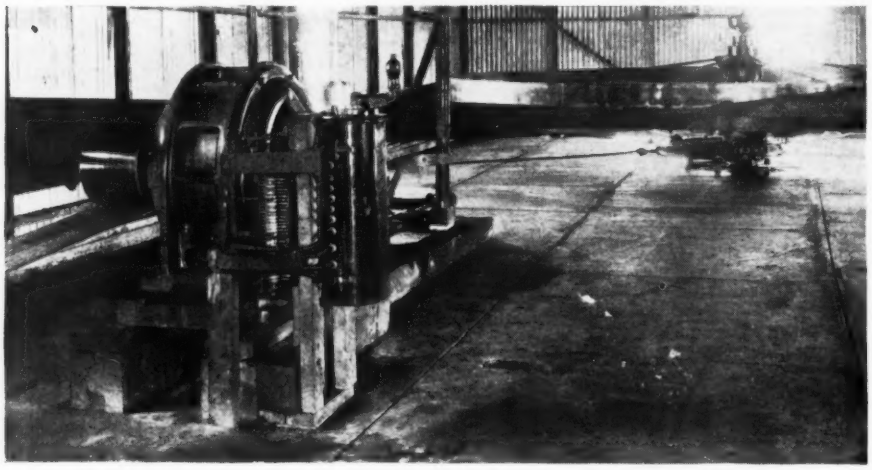

Fig. 4. Electrically driven bandwheel power. (Photo reproduced by courtesy of General Electric Co.)

The layout of a typical bandwheel power plant is illustrated in Fig. 8 which shows the relative positions of the bandwheel power, prime mover and belt-tightener. As will be noted, a rectangular building 30 feet by 78 feet in size is necessary to house a 24-foot bandwheel and its driving equipment. Such a building is often constructed of galvanized corrugated iron on a wooden frame, with a concrete floor. The shackle lines pass through horizontal slots cut in the side walls and end of the building nearest the bandwheel.

Fig. 9 illustrates the exterior of a typical building housing an oil-field bandwheel pumping power of the type above described.

Geared Powers

Another type of pumping power that is widely used in the operation of smaller groups of comparatively shallow wells, makes use of a beveled gear and pinion drive. Fig. 10 illustrates a typical power of this style.

The particular model illustrated has only one eccentric, but double-eccentric geared powers may also be had. They range in capacity from 10 to 25 horsepower, and the larger sizes are capable of pumping wells as deep as 2500 feet.

Perhaps the chief advantage of this type of power is the freedom from belt difficulty that it affords. This is one of the troublesome features of the bandwheel power. The geared power is also more compact and requires less expensive housing.

A most compact style of geared power, driven by a gas or oil engine, direct-connected through secondary gearing for speed reduction, is illustrated in Fig. 11. Such units are light and are intended only for use in shallow territory and where wells are operated in small groups.

Another type of geared pumping power avoids the use of an eccentric

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Fig. 5. Assembly view of eccentrics, bandwheel, hub, supporting shaft and base. (Courtesy National Supply Co.)

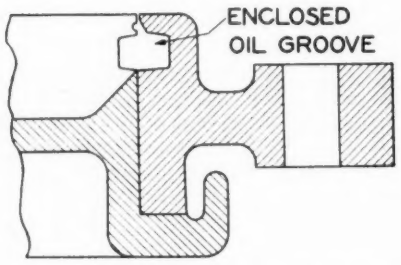
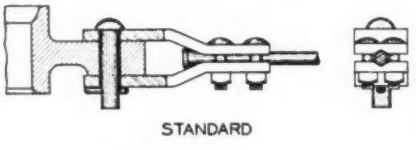
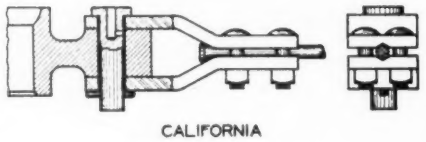


Fig. 6. Illustrating construction of eccentric, with sectional view of eccentric rim and slip-ring. (Courtesy National Supply Co.)





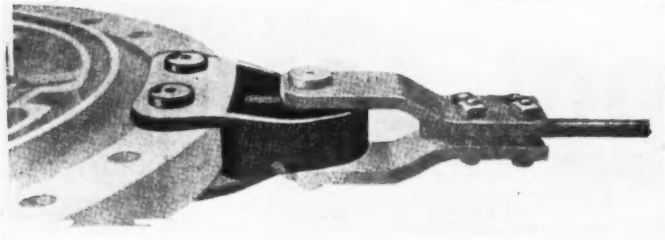


Fig. 7. Illustrating devices for attaching shackle lines to eccentrics. (Courtesy of National Supply Co.)

by mounting a pinion at some distance away from the center of rotation on the upper surface of a large wheel mounted to revolve in a horizontal plane and driven by beveled gearing on its lower surface. (See Fig. 12).

The pinion mounted on the upper surface of the wheel revolves with a circular motion by reason of its displacement from the center of rotation. A slip-ring mounted on it, provides a means of attaching several shackle lines. The lateral motion of the shackle rods, resulting through the operation of this type of power, is not objectionable if proper "take-offs" are provided.

Miscellaneous Other Types of Powers

Still another pumping power that has found use in certain fields, is the so-called "push-and-pull" type.

The shackle rods are in this case given a positive motion in both directions, the large horizontal power disc to which they are attached being reciprocated about its central axis by a crank and connecting rod mechanism driven by a belt drive from an engine or motor with intermediate gearing for further speed reduction.

One or more additional reciprocating power discs may be operated from a single engine and speed-reduction unit. As many as thirty-two two-inch pumps may be operated in wells 1000 feet or less deep with a double-disc power of this type.

For pumping one or two shallow wells, the Abel power is often used. This consists of a small gas engine (about 5 horsepower), with reduction gearing for rotating a crank at pumping speed. A wrist pin in the crank provides a means of attaching one or two shackle lines, it being possible to adjust the length of stroke of the shackle rod by placing the wrist pin in either of three holes at varying distances from the center of rotation.

Such a power is often placed midway in line between two wells with a shackle line from the wrist pin connection to each.

Balancing the Load on the Power

The number of wells that can be operated from one power depends upon their depth, their fluid levels, the size of pumps used and their distance from the power station. The degree of mechanical perfection attained in the design and operation of the transmission system will also determine to an important degree, the net effective power available at the wells, and will therefore limit the number of wells that can be successfully handled.

The power necessary at each well is theoretically determined by the product of the weight of oil lifted per unit of time and the height of lift. To this must be added the frictional losses in the well pumping

INDEX TO ARTICLES

Selected Bibliography on Petroleum Technology

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. The "Decimal Index of Petroleum Technology" gives the key to the articles. This book is published exclusively by NATIONAL PETROLEUM NEWS as a service to its readers. Price $1.00. Abstracts started April 4, 1928.

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Bernard O'Connor **960.1**

"Natural Gasoline Maker and Refiner Should Co-operate for Good of Both."

National Petroleum News, April 4, 1928, pp. 62-64.

Companies with both natural gasoline and refining divisions should work out a inter-departmental sales arrangement which will result in a maximum profit for the company as a whole. Mr. O'Connor discusses the value of natural gasoline to the refiner for blending to increase volatility, gravity and anti-knock qualities. While the refiner may get along without natural gasoline, particularly when cracking, the author presents reasons why blending is desirable and profitable.

Westcott, James H. **976.**

"Oil—Its Conservation and Waste"

Book, 207 p., Tables, Pub. by Beacon Publishing Co., 25 Broad St., New York.

The author, a New York investment specialist, has made careful study of statistics of the industry since 1916 to show the savings in use of crude oil the industry has effected through increased efficiency of refinery operations, reduction of evaporation losses, use of cracking processes and production of gasoline from natural gas. He assumes a rate of gasoline recovery from crude of 17.1 per cent, the rate of recovery before these self-adopted conservation measures became effective. Savings in terms of barrels of crude are given for each year for each of these principal measures. Descriptions of Burton, Holmes Manley, Tube and Tank, and Cross cracking processes are given and figures as to output of gasoline by each of these processes. (Cross-index 721.3)

Halbert, Ward K. **960.3**

"Koch's Recipe for Serving the Needs of the One Car Customer"

National Petroleum News, July 11, 1928, pp. 84-91.

The article describes a method of notification for motor oil changes. It was devised by the H. F. Koch Stations Co., Evansville, Ind., as a means of attracting trade; the company was directing its attention to the one car cash customer. When a customer drives over a pit the attendant hands him a form to fill in, giving name, address of customer, mileage reading, and quantity and quality of oil or grease purchased. Each attendant each day sends these forms to the office where a girl tabulates them on the customer's card record. Reminder postal cards are sent by the office when the record shows an oil change is due. Three cards are used, the original and two follows. A letter goes out after the third reminder if there have been no results. One car takes about two hours daily to handle 1,500 customers; station attendants do nothing but have the customer fill in a form while being served.

Bose, Emil and Gavins, O. A. **300-111.34**

"The Cretaceous and Tertiary of Southern Texas and Northern Mexico"

University of Texas Bulletin No. 2748, December, 1927.

This bulletin is purely scientific and contains no discussion of the economic geology of the region studied. It is intended as a guide to the geologist who investigates the area from an economic standpoint. It contains a comprehensive description by the senior author of Cretaceous Ammonites from Texas and Northern Mexico.

Bownocker, J. A. and Stout, W. **305-111.13-.21**

"Mineral Industries of Ohio"

Geological Survey of Ohio Bulletin 33, fourth series, 1928.

This is essentially a directory of companies engaged in mineral production, including oil and gas. It includes also a large map of the state showing location of industries, with oil and gas fields outlined.

Herold, Stanley C. **501.5**

"Jamin Action—What It Is and How It Affects Production of Oil and Gas."

Bulletin of American Association of Petroleum Geologists, Vol 12, No. 6, June 1928, pp. 659-670.

Jamin action is described as a physical phenomenon due to alternating globules of liquid and bubbles of gas in channels of capillary dimensions. Laboratory test results are described as related to natural reservoir conditions affecting production of oil wells. Special emphasis is placed on the effects of Jamin action as regards rate of production, volume produced from the well and percentage of recovery from sands by natural flow. The paper also discusses methods of discriminating in the field between volumetric and capillary controls. (Cross-index under 331.)

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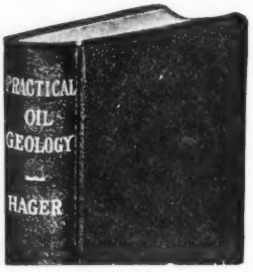

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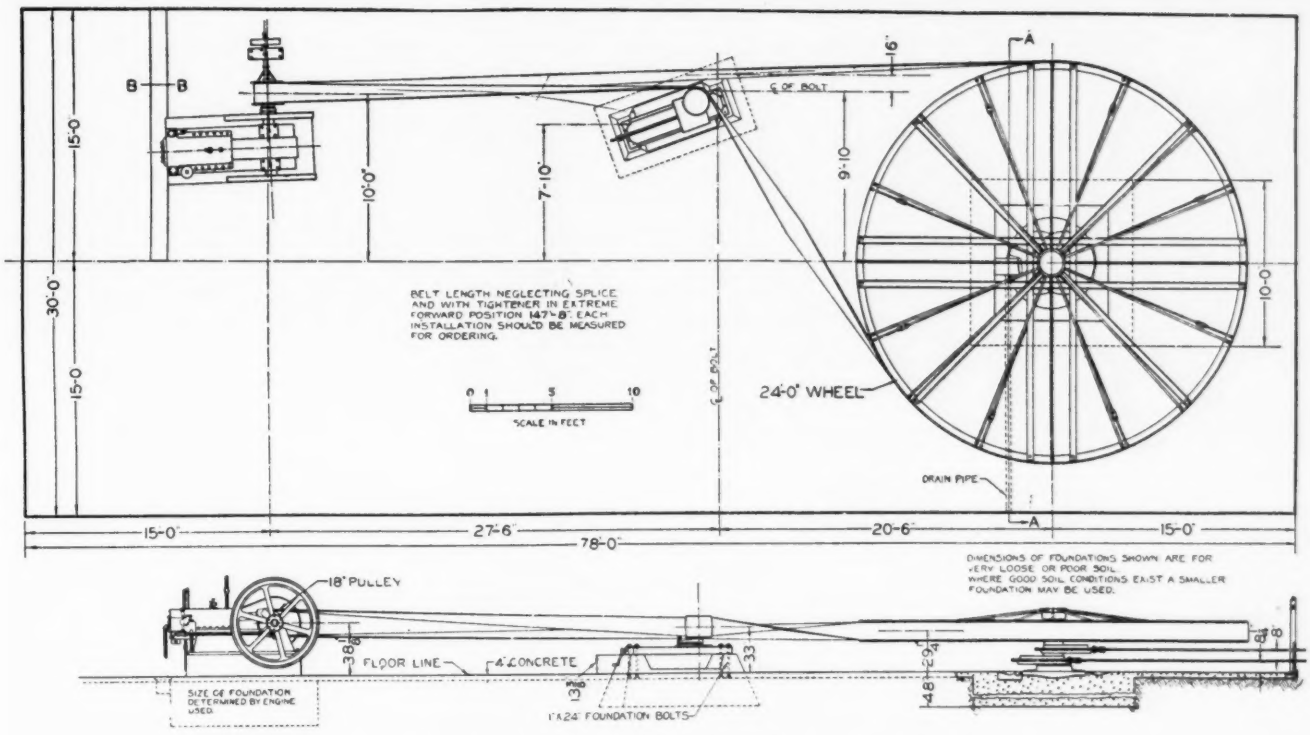

Fig. 8. Illustrating lay-out of typical band wheel power. (Courtesy of National Supply Co.)

equipment and in the surface transmission mechanism. Frictional losses will generally represent an important part of the total power requirement, especially in poorly designed and constructed installations.

Table I indicates to what extent the depth of the wells and size of pump used influences the capacity of a typical bandwheel type of power.

Maximum power economy is achieved by attaching the shackle lines leading to the various wells on the power eccentric in such positions that a uniform loading is applied. That is, as the drive wheel revolves, it should at all times be under uniform loading so that it has no tendency to alter its speed at different parts of its stroke.

This is generally accomplished by "cut-and-try" methods, experimenting by attaching the lines to the various wells in different positions on the eccentric slip rings, until the arrangement giving the most uniform motion and lowest power consumption, is found.

Generally each individual shackle line is taken off in a straight line directly toward the well to be operated by it, but if a suitable balance of loads cannot be otherwise secured, one or more of the lines may be taken off from the power in some other direction than the well or wells to be pumped, thus changing the balance of forces operating on the power eccentric.

The direction of the shackle lines in such cases must of course, be changed at some point intermediate between the power and the wells when this plan is followed. In some instances where proper balancing of loads cannot be otherwise secured, an additional load is provided, in the nature of an oscillating "balance bob," with shackle-line connection to the power eccentrics similar to those employed in operating the wells.

It is much easier to effect a load balance on a double-eccentric power in which the two eccentrics are mounted 180 degrees apart on the drive shaft, than is possible with a single eccentric.

The load on the power is also influenced to an important degree by its position with respect to that of the wells which it operates. Obviously, if all the wells of the group to be operated are on one side of the power, it will be more difficult to secure a proper load balance than if the power is somewhere near the geographic center of the group.

The average length of the pull rods is also less if the power is centrally situated, and the frictional and elastic losses in the transmission system are correspondingly reduced.

It is possible by careful engineering design and determination of the power requirements of the various wells, to analyze all of these factors in advance of the construction of a multiple pumping installation, and to so locate the power that a minimum consumption of energy will be expended in its operation. The amount of power necessary may also be predicted with fair precision.

The design of such an installation affords an excellent example of the application of a fundamental principle of mechanics with which all engineers are familiar. In its theoretical aspects, the selection of the best position for the power consists simply in finding a point at which the resultant of all forces will be zero.

Such a problem may be solved graphically by either of several different methods on a map of the well locations drawn to scale, a force diagram being constructed in which the power requirements of the various

TABLE I. EFFECT OF DEPTH OF WELLS AND SIZE OF TUBING ON NUMBER OF WELLS THAT CAN BE PUMPED WITH A BAND-WHEEL POWER*

Depth of Wells	2" Tubing	2½" Tubing	3" Tubing
40-h.p. power, 18" stroke, 18-strokes per minute:			
1,000-ft.	35-wells	22-wells	15-wells.
1,500-ft.	24-wells	15-wells	10-wells.
2,000-ft.	18-wells	11-wells	8-wells.
2,500-ft.	14-wells	9-wells	6-wells.
25-h.p. power, 18" stroke, 18-strokes per minute:			
1,000-ft.	22-wells	14-wells	10-wells.
1,500-ft.	15-wells	10-wells	7-wells.
2,000-ft.	11-wells	7-wells	5-wells.
2,500-ft.	9-wells	6-wells	4-wells.

*From National Supply Company's Bulletin 1NA. Data computed on basis of 1-h.p. per 1000-foot lift in 2-inch tubing, per 650-foot lift in 2½-inch tubing and per 450-foot lift in 3-inch tubing.

Fig. 9 Exterior view of typical building housing band wheel power. (Photo by R. M. Barnes)

wells are represented by scaled vectors.[1]

Mechanical design and layout of the power transmission equipment and means of applying this type of power at the individual wells, are equally important in securing a high degree of over-all mechanical efficiency with the selection and design of the power itself. These matters are to be discussed in a continuation of the present article, which will appear in a forthcoming issue of NATIONAL PETROLEUM NEWS.

[1] For a detailed explanation of the method of solving such a problem along the lines of fundamental mechanics, the reader is referred to an article by G. Gaziyev, in Oil Field Engineering, issues of July and August, 1927.

Fig. 10. Single eccentric geared power with belt drive. (Courtesy National Supply Co.)

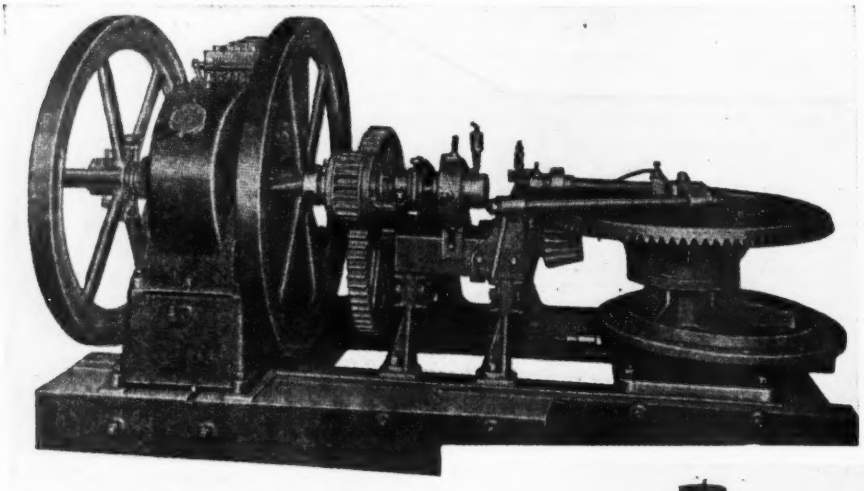

Fig. 11. Single eccentric geared power with direct connected gas engine. (Courtesy Kansas City Hay Press Co.)

New Equipment

A. R. Martin has recently become associated with C. F. Braun & Co., manufacturers of heat exchangers and oil refining equipment. Mr. Martin will specialize on the design of complete refining units. He was for many years superintendent of the Tampico refinery of the Huasteca Petroleum Co. and more recently superintendent of the Destrehan refinery of the Mexican Petroleum Co.

* * *

MacGregor Valve Co., St. Louis, Mo., has appointed J. W. Cliff as production manager. Mr. Cliff has held engineering and executive positions with the Power Accounting Co., Hyatt Roller Bearing Co., Wright-Martin Aircraft Co., etc., and for the past five years was shop superintendent for Merco-Nordstrom valves. The MacGregor company is installing machinery for quantity production of its rotary valves, which the company claims to be the latest development in the lubricated valve field.

* * *

Chicago Pneumatic Tool Co., 6 East 44th St., New York City, has appointed W. S. Lynch, formerly district manager at Seattle, Wash., to succeed T. G. Smallwood as district manager at Cincinnati, O. Mr. Small-

Fig. 12. Disc type geared power. (Courtesy Joseph Reid Gas Engine Co.)

D. W. HARRIS

Has been made vice president and general manager of the Arkansas Natural Gas Corp., recently purchased by the Henry L. Doherty interests, as published in NATIONAL PETROLEUM NEWS *July 4*

wood has obtained a leave of absence on account of ill health.

A. M. Anderson succeeds Mr. Lynch as acting district manager at Seattle.

* * *

Purchase of the American Schaeffer & Budenberg Corp. is announced by Manning, Maxwell & Moore, Inc., with general offices at 100 East 42nd street here. The latter company will merge the business of the American Schaeffer company with that of Consolidated Ashcroft Hancock Co., Inc., a subsidiary of Manning, Maxwell & Moore, Inc.

The complete American Schaeffer & Budenberg line of gages, safety valves, thermometers and recording instruments will be manufactured and sold along with the steam specialties made by the Consolidated Ashcroft Hancock Co.

* * *

The Burrell-Mase Engineering Co., of Pittsburgh, is building a 2000-gallon a day oil absorption natural gasoline plant near Waynesburg, Pa., for the George H. Weinrott interests of Philadelphia and a 1000-gallon per day solvent recovery plant for the Raybestos Co. at Bridgeport, Conn.

* * *

Oxweld Acetylene Co., 30 East Forty-second street, New York City, has off the press a catalog devoted to its products, including welding and cutting equipment of many kinds, and generators for the production of acetylene. New items described are the new type C-14 cutting blowpipe, the Carbic portable low-pressure acetylene generators and the Carbic floodlights for all purposes.

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CAMEL-BRAY GAS

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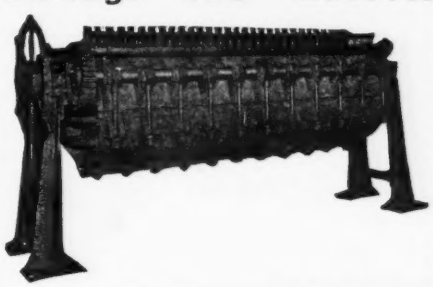

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Determining Gasoline Vapor Pressure By the A.S.T.M. Distillation Test

(Contribution of Research Department of the Phillips Petroleum Co.)*

THE writers have had occasion to make a comparison of several methods used in determining the vapor pressures of motor fuels. Since the A. S. T. M. distillation test is universally used by the petroleum industry, it was deemed advisable to correlate, if possible, the results of the various vapor pressure testing methods with the A. S. T. M. distillation characteristics of motor fuels.

The distillation test has long been used as a volatility index of gasoline, specifications for gasoline being based primarily on this testing method. Attempts to correlate the distillation test with a vapor pressure measurement have failed for the greater part, due to the inaccuracy of the methods used for determining vapor pressures.

Probably the first attempt to establish a relation between the distillation test and vapor pressure was that of Charles P. Beistle in 1918. He recommended the adoption of a minimum initial boiling point, which was to be determined in a carefully described manner, of 70 degrees F. for all inflammable liquid shipped in ordinary tank cars[1]. Again (1921) it was suggested in a report of the special technical committee of the A. P. I. on some proposed changes in the Bureau of Explosives vapor pressure testing method, that a suitable method of distillation for determining the vapor pressure of gasoline could probably be found.

A joint committee of the Bureau of Explosives, the Bureau of Mines and the Association of Natural Gasoline Manufacturers investigating these same proposed changes stated in their report that the method of determining the volatility of natural gas gasoline by means of distillation loss was found to be very accurate and gave results that could easily be duplicated. In all of this work it was attempted to correlate the distillation data with the vapor pressures determined by means of the present Bureau of Explosives method.

Oberfell and others[2] have shown that the relationship between the present Bureau of Explosives vapor pressure method and the A. S. T. M. distillation loss is very erratic. They have also shown that there is a fairly definite relationship between vapor pressures calculated from composition analysis and distillation losses. They point out, however, that this relationship reveals the greatest error at the point where the highest degree of accuracy is desirable; namely, for gasoline of the highest permissable of volatility for shipment. They also conclude that the relationship ceases to give any definite criterion of volatility after the distillation loss approaches zero. The Lone Star Gas Co. has recently[3] suggested that the A.

*By G. G. Oberfell, R. C. Alden and L. H. Fitch..

1. Wescott's Handbook (2nd edition); Charles P. Beistle, Page 441.

2. A. P. I. Convention Report, Dec. 1927; "Comparison of Vapor Pressure Testing Methods" by G. G. Oberfell, R. C. Alden and Harold Hepp.

3. A Report of the Lone Star Gas Co. to the Natural Gasoline Association of America and to the American Petroleum Institute.

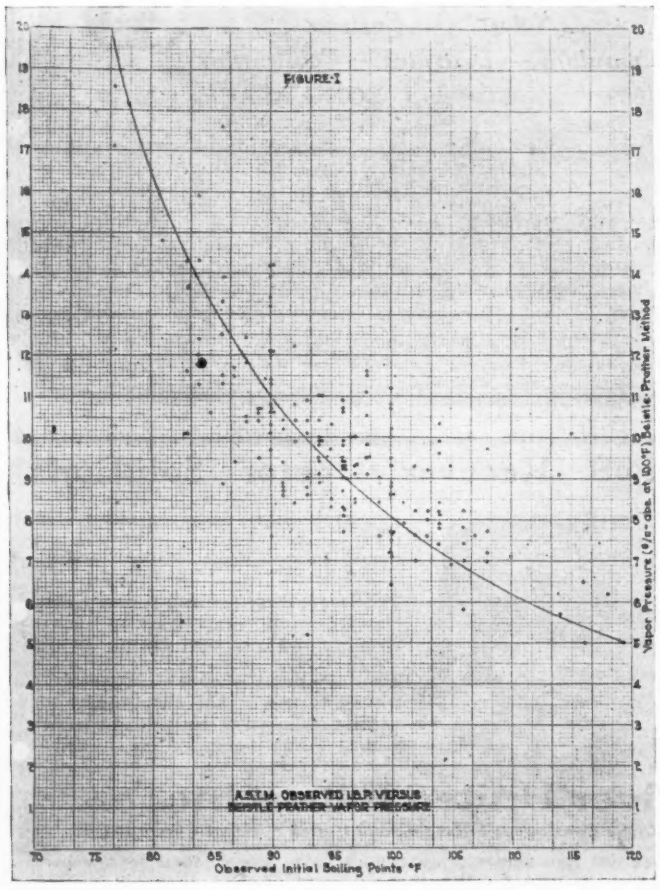
FIGURE-I
A.S.T.M. OBSERVED I.B.P. VERSUS BEISTLE-PRATHER VAPOR PRESSURE
Observed Initial Boiling Points °F
Vapor Pressure (#/sq-ins. at 100°F) Beistle-Prather Method

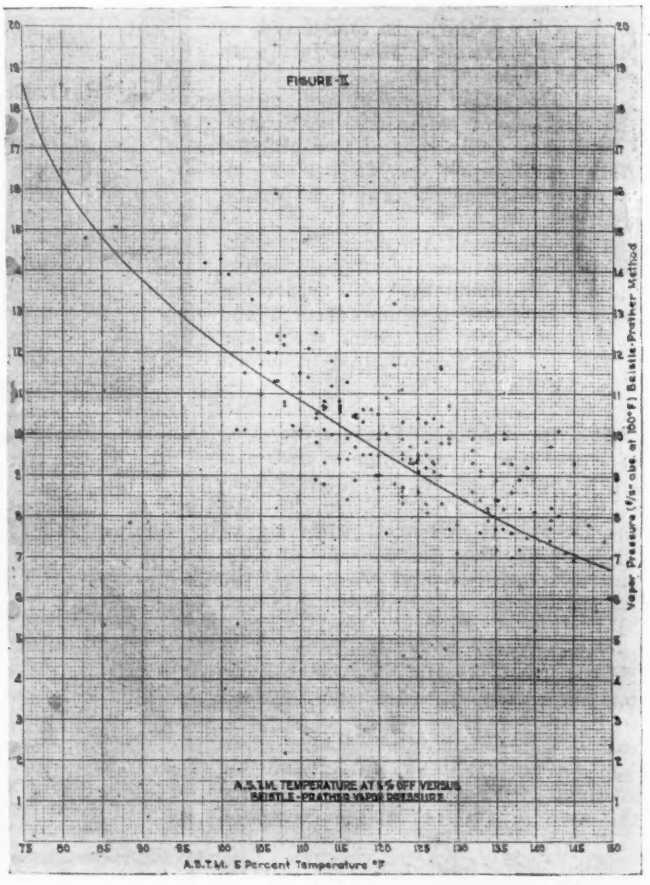
FIGURE-II
A.S.T.M. TEMPERATURE AT 5% OFF VERSUS BEISTLE-PRATHER VAPOR PRESSURE
A.S.T.M. 5 Percent Temperature °F
Vapor Pressure (#/sq-ins. at 100°F) Beistle-Prather Method

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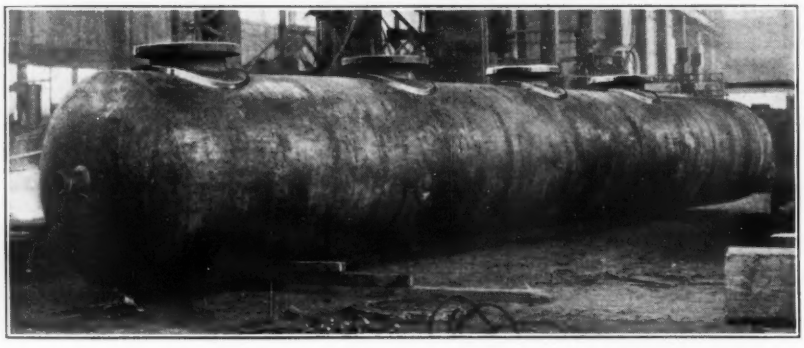

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S. T. M. initial boiling point be used as a means of determining the vapor pressure of natural gasoline.

Correlation of A. S. T. M. Distillation Test Data with Vapor Pressure Test Results

THIS correlation was made in an effort to develop a chart by means of which it would be possible to predict with a reasonable degree of accuracy the vapor pressure of motor fuels from their A. S. T. M. distillation characteristics. Vapor pressures of the samples were determined by means of the Beistle-Prather method. Distillation tests were made according to the standard A. S. T. M. distillation method. All vapor pressure test results are expressed in pounds per square inch absolute at 100 degrees F.

Previous work in this laboratory had indicated that the initial boiling point alone was not a very satisfactory criterion of the vapor pressure of gasoline. Correlations of vapor pressure with intermediate boiling point gave promise of more accurate results and it was found that a consideration of the observed initial boiling point and the 5 per cent distillation point would simplify calculations and would give vapor pressure test indications with a reasonable and practicable degree of accuracy.

Figure 1 shows graphically the relation between Beistle-Prather vapor pressure test results and the A. S. T. M. initial boiling point of the motor fuels examined. Fig. 2 shows a similar relation for the 5 per cent point on the A. S. T. M. distillation curve. It is to be noted that the distillation loss was plotted so as to show the distillation loss at the beginning of the curves. The temperature of the 5 per cent distillation point was read from the curves thus plotted.

This manner of plotting curves makes the method rather unsatisfactory on samples with a distillation loss of more than 5 per cent since the 5 per cent temperature would have to be otherwise taken from an extrapolated portion of the curve. The writers have been unable to obtain a satisfactory correlation of vapor pressures with A. S. T. M. observed initial boiling points for natural gasolines. Additional comparisons and correlations which are being made at present give promise of a satisfactory solution to the problem by estimating a more significant initial boiling point from the A. S. T. M. distillation characteristics.

Figure 3 represents a chart for estimating vapor pressures from the data as presented in Figures 1 and 2. Vapor pressure determinations by various methods have been compared with the vapor pressures as predicted by the use of the chart in Figure 3 for a large number of motor fuel samples. Summaries of these comparisons are presented in tables 1,

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Manning, Maxwell & Moore, Inc., has purchased the entire business of the American Schaeffer & Budenberg Corporation, including goodwill, trade names, trade marks, patents, etc., and it will merge that business with the business of its subsidiary company, Consolidated Ashcroft Hancock Company, Inc.

Consolidated Ashcroft Hancock Company, Inc., which is owned exclusively by Manning, Maxwell & Moore, Inc., is the operating company handling the manufacture and sales of their Steam Specialties business. This includes the well-known lines of Ashcroft Gauges, Consolidated Safety Valves, Hancock Valves, Inspirators, etc.

The complete American Schaeffer & Budenberg line, including Gauges, Safety Valves, Thermometers and Recording Instruments for a wide range of service, will be manufactured and sold in conjunction with Consolidated Ashcroft Hancock products.

A liberal constructive policy, involving more extensive research and development work of a scope impossible with either company when separately operated, has been adopted.

This merger places under one ownership the most important and meritorious line of Steam Specialties in the United States.

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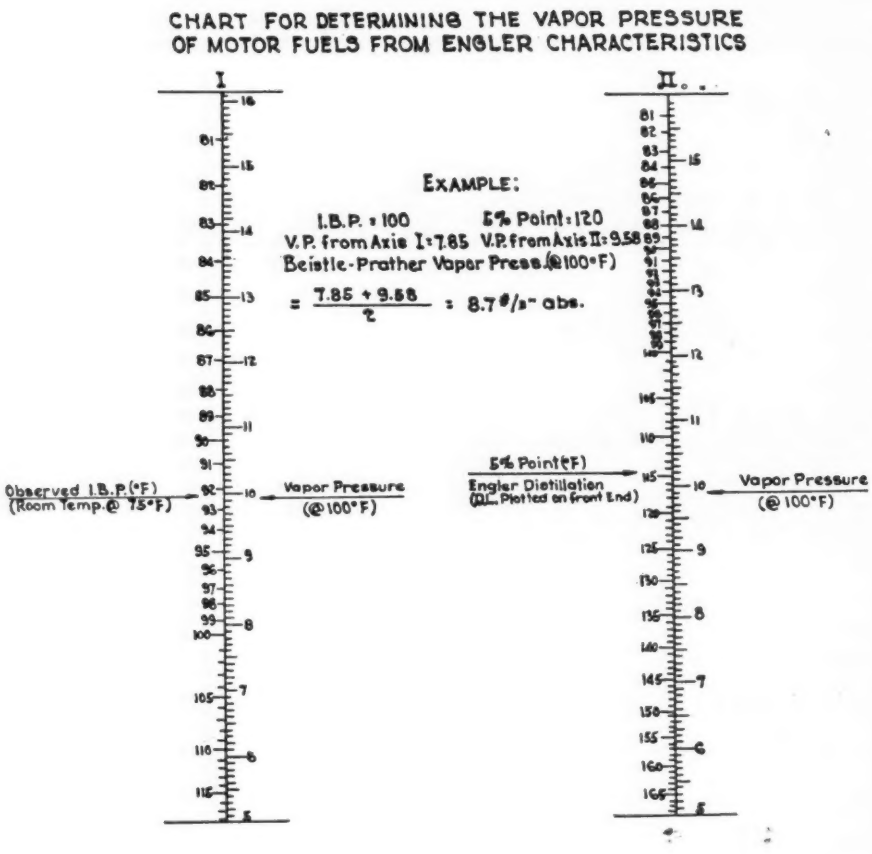
CHART FOR DETERMINING THE VAPOR PRESSURE OF MOTOR FUELS FROM ENGLER CHARACTERISTICS
I
II
EXAMPLE:
I.B.P. = 100
5% Point = 120
V.P. from Axis I = 7.85
V.P. from Axis II = 9.58
Beistle-Prather Vapor Press. (@ 100°F)
= 7.85 + 9.58 / 2 = 8.7 #/in² abs.
Observed I.B.P. (°F) (Room Temp. @ 75°F)
Vapor Pressure (@ 100°F)
5% Point (°F) Engler Distillation (D.L. Plotted on Front End)
Vapor Pressure (@ 100°F)

Figure III

2, and 3. As a result of these comparisons table 4 has been prepared for the purpose of presenting corrections which may be used in converting vapor pressure by any of the methods given to those obtainable on motor fuels by the other testing methods for which the correlations have been made.

The method termed "composition analysis" in the second column of table 4 represents the vapor pressure calculated from Raoult's law and the composition of the gasoline. The data necessary for this column was obtained from the composition and vapor pressures of natural gasolines which had vapor pressures of approximately ten pounds per square inch, which is the vapor pressure of average motor fuel.

Conclusions

THE A.S.T.M. distillation curve furnishes data which, when properly interpreted, gives a reasonably close approximation of the vapor pressure of motor fuel, as determined by the Beistle-Prather, Reid and Phillips Petroleum Co. laboratory method.

Book Reviews

The 1928 edition of the "Handbook of Petroleum, Asphalt and Natural Gas," containing 830 pages, of which Roy Cross of the Kansas City Testing Laboratories, is author, is now off the press. The book contains valuable information on the economics of petroleum and on practical problems of refining, producing, cracking and so forth, chemical symbols for the principal hydrocarbons in petroleum, tables giving coefficients for the correction of volume for temperature of various products at various temperatures, and many other features of value.

* *

An important new book for the refiner is "Petroleum and Its Products" by William A. Gruse, Ph. D of the Mellon Institute of Industrial Research. Dr. Gruse, who has spent years in physical and chemical research in petroleum, states in his preface that he was "moved to write this book by the lack of collected information on petroleum chemistry in the English language, particularly that assembled from the standpoint of the American industry."

He divides the work into three sections, the first descriptive of important types of petroleum, its origin, physical properties, constitution from a chemical standpoint, including hydrocarbon and non-hydrocarbon constituents.

Distillation, refining and treating by chemical methods and by physical methods such as adsorption and cracking are dealt with in the section of the book devoted to refining.

Under the heading of utilization, gasoline and other motor fuels are taken up. Kerosene, lubrication and petroleum lubricants, wax and petrolatum, fuel oil, petroleum asphalts and miscellaneous by-products are discussed.

TABLE 1

DEVIATION OF VAPOR PRESSURES DETERMINED BY BEISTLE-PRATHER AND PHILLIPS PETROLEUM COMPANY LABORATORY METHODS FROM VAPOR PRESSURES DETERMINED BY A. S. T. M. DISTILLATION CHARACTERISTICS
(Number of Samples — 183)

	Beistle-Prather	Phillips Pet. Co. Laboratory Method
Average Positive Deviation, %	+9.47	+10.20
Average Negative Deviation, %	—8.26	— 5.74
Average Algebraic Deviation, %	+1.21	+ 4.46

(Note: Positive signs refer to values higher than A.S.T.M. vapor pressures, Negative signs to those lower than A.S.T.M. vapor pressures)

TABLE 2

DEVIATION OF VAPOR PRESSURES DETERMINED BY BEISTLE-PRATHER AND REID METHODS FROM VAPOR PRESSURES DETERMINED BY A. S. T. M. DISTILLATION CHARACTERISTICS
(Number of Samples — 18)

	Beistle-Prather	Reid
Average Positive Deviation, %	+16.58	+10.32
Average Negative Deviation, %	— 2.35	— 7.45
Average Algebraic Deviation, %	+14.23	+ 2.87

(Note: Positive signs refer to values higher than A. S. T. M. vapor pressures, Negative signs to those lower than A. S. T. M. vapor pressures)

TABLE 3

SUMMARY OF TEST RESULTS SHOWING COMPARATIVE AGREEMENT OF A. S. T. M. METHOD WITH OTHER METHODS

Deviation from A.S.T.M. Method Values	Per Cent of Total Number of Tests: Beistle-Prather	Phillips Pet. Co. Laboratory Method	Reid
± 5.0% or less	35.5	39.4	33.3
± 7.5% or less	50.8	53.9	50.0
±10.0% or less	66.7	65.4	72.2
±12.5% or less	73.8	74.5	77.8
±15.0% or less	79.3	81.8	88.9
±20.0% or less	84.8	92.1	100.0
±25.0% or less	90.8	95.1	.....
Total number of tests	183	165	18

TABLE 4

CORRECTIONS FOR USE IN CONVERTING VAPOR PRESSURE RESULTS BY A GIVEN METHOD TO THOSE OF OTHER GIVEN METHODS (LBS. PER SQ. IN.)

Method	Reid	Composition Analysis	A.S.T.M. Distillation	Beistle-Prather	Phillips Pet. Co. Laboratory Method
Reid	0	+0.6	+1.0	+1.4	+1.8
Composition Analysis	—0.6	0	+0.4	+0.8	+1.2
A.S.T.M. Distillation	—1.0	—0.4	0	+0.4	+0.8
Beistle-Prather	—1.4	—0.8	—0.4	0	+0.4
P.P. Co. Laboratory Method	—1.8	—1.2	—0.8	—0.4	0

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

ADOPTION by the Standard Oil Co. of California of a vapor phase cracking process, as was related in last week's paper*, brings to mind the invention by Ralph Halloran, technologist of the Standard of California of a method of treating cracked gasoline with sulfuric acid at low temperature. This process Mr. Halloran described before the American Petroleum Institute last winter.

It is likely that this treating method will be an important factor in the use of the Leamon vapor phase cracking process. Treating of Stellarene, which is the product of the Leamon process, with sulfuric acid according to the method commonly employed for liquid phase cracked gasoline is impractical because of the enormous losses involved, both volumetric and in anti-knock value.

Much study has been devoted to finding satisfactory treating methods for all vapor phase cracked products. W. G. Leamon, inventor of the Stellarene process says that the cold acid treating method is likely to prove satisfactory for treating Stellarene, because by reducing to a low point the temperature at which the treating is carried on, excessive losses are avoided.

The two recent forward steps taken by vapor phase cracking, namely the adoption of the Leamon process by the Standard of California and the taking over of exclusive licensing rights of the Gyro process by Max B. Miller & Co., Inc., which also was chronicled in this paper*, leads to the speculation as to whether vapor phase cracked fuel is not to cut an important figure in the development of aviation which is progressing rapidly. Natural gasoline carefully fractionated to exacting specifications is proving a good airplane fuel but it seems that Ethyl gasoline is not being widely used for aircraft. The Standard of Indiana, for instance, does not recommend it for flying but instead puts out a special fuel designed for that purpose.

A number of other companies are also putting out special airplane fuels of various sorts and some are advertising them. It would seem however, that the last word has not been said in the matter of airplane fuels, by any means.

W. G. Leamon, quoted elsewhere on this page, points out that the requirements of an airplane fuel are different from those of an automobile fuel. Whereas with the automobile the requisite is miles per gallon and weight cuts but little figure, with aircraft the aim is greatest number of horsepower-hours per pound of weight carried.

* * *

THE Standard Oil Co. of Ohio is putting on an effective advertising campaign to merchandise its new motor fuel "Sohio." This is advertised as a special high grade fuel and it contains Ethyl fluid. In the series of ads now running in large space in Ohio daily newspapers, the Standard is taking the public into its confidence in a rather unusual way as to how the fuel is made.

Three points particularly are stressed, aside of course from the merits of the new gasoline. First, that the Standard is Ohio's oldest refining company, second that it has the newest equipment and latest refining art to unlock the secrets of petroleum and third, pictures of the equipment itself.

It is stressed that the fuel is made under a pressure of 1000 pounds to the square inch (which is higher than almost any other refinery goes) and "withering heat" is employed. "Harnessing a pressure of half a ton" is how one ad describes it. Another point made in the ads is that Sohio is exclusive. It is made for Ohio only, motorists in other states cannot get it.

* * *

GEORGE A. BURRELL, head of the Burrell-Mase Engineering Co., Pittsburgh, specialists in refining and natural gasoline engineering, is spending part of the summer at the Riverside, Ill., plant of the Universal Oil Products Co., Chicago, studying cracking problems. Universal Oil Products Co. is the owner of the Dubbs process and Mr. Burrell has for some time been a consulting engineer and expert witness for the company.

* * *

THE Power Specialist, house organ of Johns-Manville Co., has in a recent issue an interesting description of some of the construction features in the refinery of the Barber Asphalt Co. at Maurer, N. J., particularly insulating and furnace design.

The chief purpose of the Barber Asphalt Co. as its name implies is the manufacture of asphalt for paving and other purposes but a large amount of this asphalt is made from crude oil and large quantities of various petroleum products are made incidentally.

* * *

DEVELOPMENT of specialty refining, which is making sure if slow progress in the industry seems likely finally to bring about a condition where the refiner will buy crude on the basis of different values than those on which it is sold today. For instance, outside of Pennsylvania and Ranger, very few crudes bring a relatively high price for any other reason than that they contain a large percentage of gasoline.

High gasoline crudes undoubtedly always will be in demand at a good price but how about those crudes that contain little gasoline but do contain excellent possibilities for the manufacture of specialty products.

As refiners turn more to the manufacture of special commodities such as white oils, petrolatums and various other products, some of which are not now recognized as possible to make from petroleum, it seems likely that they will have to shop around to get the most suitable crude and they will pay a good price for it, which will benefit the producer by bringing him a better price as well as the refiner by furnishing him crude on which he can make the most profit.

*N. P. N. July 25 Issue, Page 19.
*N. P. N. July 18 Issue, Page 60.

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New Patents

July 17, 1928

REFINING

Lubricating Oil—John H. Mackle, Watervliet, N. Y. Filed March 10, 1925. No. 1,677,244.

Motor Fuel—David Costaguta, Buenos Aires, Argentina. Filed June 1, 1925. No. 1,677,273.

Asphalt-mixing Plant—Frederick H. Cummer, Los Angeles, Calif. Filed Dec. 13, 1926. No. 1,677,274.

Cylinder Oil Composition and Method of Preparing—Raymond T. Howes, Wilmington, Calif., assignor to Pan American Petroleum Co., Los Angeles. Filed Jan. 5, 1927. No. 1,677,389.

Process for the Refining of Petroleum Fractions—Frank C. Axtell, South Pasadena, Calif., assignor to Axtell Research Laboratories, Inc., Los Angeles. Filed Sept. 24, 1925. No. 1,677,425.

Process of Treating Petroleums—Wright W. Gary, Los Angeles, assignor of one-half to Charles O. Middleton, Los Angeles. Filed June 7, 1926. No. 1,677,440.

Process of Working up Acid Resins Obtained from the Refining of Mineral Oil Derivatives into Neutral Bitumens—Carl Sautermeister, Wiesbaden, Germany and Friedrich Wilhelm, Ploesti, Rumania. Filed Dec. 19, 1925. No. 1,677,731.

Art of Cracking Hydrocarbons—Eugene C. Herthel and Thomas De Colon Tifft, Chicago, assignors to Sinclair Refining Co., New York City. Filed June 22, 1926. No. 1,677,772.

Art of Cracking Hydrocarbon Oils—Eugene C. Herthel and Thomas De Colon Tifft, Chicago, assignors to Sinclair Refining Co., New York City. Filed June 22, 1926. No. 1,677,773.

Art of Cracking Hydrocarbon Oils—Eugene C. Herthel and Thomas De Colon Tifft, Chicago, assignors to Sinclair Refining Co., New York City. Filed June 22, 1926. No. 1,677,774.

Art of Cracking Hydrocarbon Oils—Eugene C. Herthel and Thomas De Colon Tifft, Chicago, assignors to Sinclair Refining Co., New York City. Filed Aug. 12, 1927. No. 1,677,775.

Art of Cracking Hydrocarbon Oils—Eugene C. Herthel and Thomas De Colon Tifft, Chicago, assignors to Sinclair Refining Co., New York City. Filed Oct. 27, 1927. No. 1,677,776.

PRODUCTION

Apparatus for Lifting Oil in Oil Wells—Theophilus Kallmeyer, Wilmington, Calif. Filed May 29, 1924. No. 1,677,349.

Temper Screw—Lambert McKillop, Capetown, Ont. Filed Apr. 15, 1927. No. 1,677,358.

Casing Cutter—William A. Vock, Redondo Beach, Calif. and Harry E. Lynn, Torrance, Calif. Filed May 12, 1925. No. 1,677,507.

Pressure-Control Device for Use in Coupling Oil Well Casing—Emery Gracey Whaley, Enid, Okla., assignor of one-half to Frank Edward Sackrider, Enid, Okla. Filed Feb. 11, 1926. No. 1,677,538.

Oil Well Derrick—Benjamin F. Sumpter, Wichita Falls, Tex., Douglas E. Winfree, Chickasha, Okla. and Roland B. Robirds, Wichita Falls, Tex. Filed April 1, 1927. No. 1,677,738.

Underreamer—Charles H. Brown, Breckenridge, Tex. Filed Oct. 7, 1925. No. 1,677,812.

NATURAL GAS

Process of Treating Methane Gas—Georges Olivier, Asnieres, France, assignor to Societe Anonyme le Petrole Synthetique, Asnieres, France. Filed June 3, 1926. No. 1,677,363.

Absorption Plant for Gases and Vapors—Fritz Rottmann and Friedrich Brohmeyer, Bovinghansen, Germany. Filed July 6, 1925. No. 1,677,509.

Gas Scrubber for Refrigerating Apparatus—Allan C. Thayer, Detroit, Mich., assignor to Ubald R. Loranger, Detroit, Mich. Filed Jan. 29, 1923. No. 1,677,804.

Process for the Chlorination of Methane—Erich Krause, Constance, Germany, assignor to the Firm of Holzverkohlungs-Industrie Atkiengesellschaft, Constance, Baden, Germany. Filed Jan. 6, 1923. No. 1,677,831.

MISCELLANEOUS

Device for Testing Lubricating Oils—Adolph A. Schaefer, Buffalo, N. Y., assignor to Frontier Mfg. Co., North Tonawanda, N. Y. Filed Dec. 12. 1921. No. 1,677,690.

Textile Lubricant and Process—Joseph J. Schaefer, Jr., Dayton, O. Filed Jan. 5, 1928. No. 1,677,852.

Better Home Heating Burners Find Heavier Oil Suitable Fuel

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, July 27

IMPROVEMENTS in the type of oil burners being manufactured for home heating service are having an increasing effect on the type of oils demanded for home consumption. The effect has been marked within the past year and a half.

Most of the new burners being installed work satisfactorily on a good grade of gas oil or a very light fuel oil. The old gravity feed burners which balked on anything which did not approach the specifications of kerosene are passing rapidly from the picture. Their manufacture has virtually ceased and earlier installations are being replaced steadily.

One of the clearest indications of the change in domestic oil fuels may be seen in the weekly statistical reports on Mid-Continent refinery operations prepared by this publication. In these reports stove distillate within the approximate range of 36 to 40 A.P.I. gravity is reported as a separate commodity from kerosene or gas and fuel oils. This is the only separate report on the commodity which is published regularly as a part of any statistical service.

A study of these figures over the past three years presents a situation which is unusual to the oil industry. Normally every one in the business expects to find a large increase in gallonage from year to year. That is taken as a matter of course. But stove distillate demand, as indicated by refinery shipments from the Mid-Continent field, has been falling since January, 1927.

In the first six months of 1927, the group of plants reporting to NATIONAL PETROLEUM NEWS shipped 40,697,000 gallons of stove distillate to their customers. In the first half of 1926 the same group shipped 47,109,000 gallons. The loss in business for the first half of 1927 was thus 13.6 per cent.

For 1926 as a whole the reporting refiners shipped 92,549,000 gallons of stove distillate. In 1927 they shipped only 76,715,000 gallons, a reduction of 17.1 per cent. In the last half of 1926 distillate shipments totaled 45,440,000 gallons as compared with 36,018,000 gallons for the last half of 1927, a loss of 20.74 per cent.

The downward trend in shipments has continued this year without interruption. In the first six months of 1928, distillate shipments totaled 32,841,000 gallons, a loss of an additional 8,000,000 gallons over the first half of 1927. This represents a loss of 19.31 per cent over the corresponding period a year ago. Current demand is thus only two thirds as large as it was two years ago.

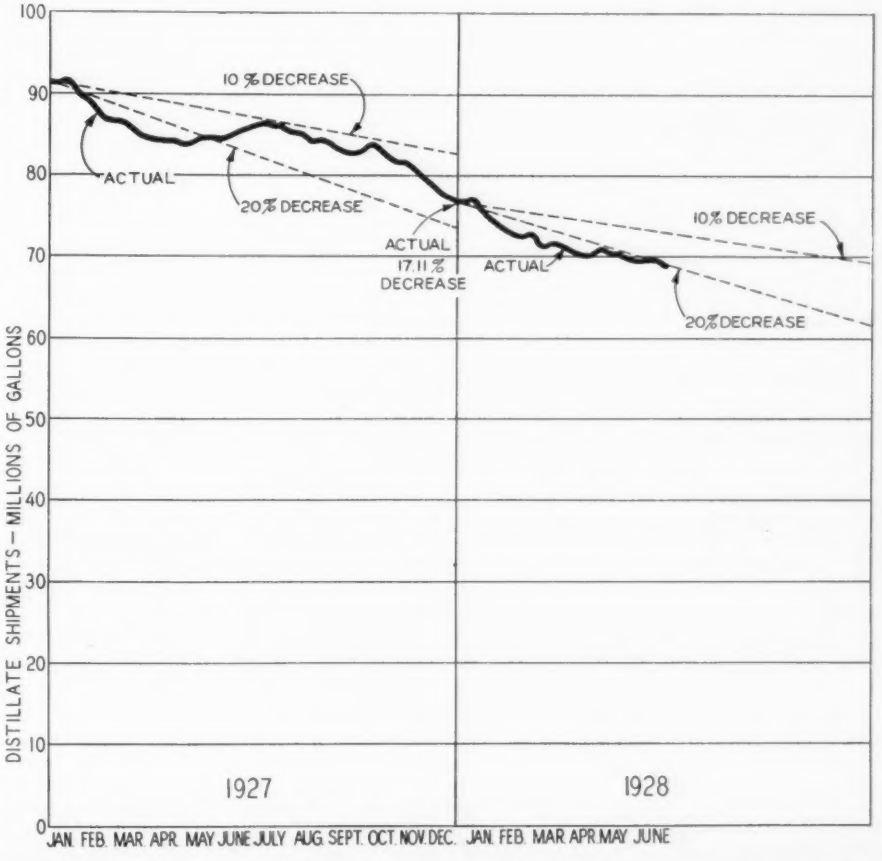
The trend of decline in the demand for distillate is shown clearly in the accompanying chart showing total shipments of the product for 52 weeks ending with each week from Jan. 1, 1927 to date. With the line of actual decline are given lines showing declines at the rate of 10 per cent and 20 per cent per year for comparison purposes. It will be observed that the current annual rate of decline is about 20 per cent.

The decrease in distillate demand is not one which will bring tears to the eyes of many refiners. Most of them prefer not to make the product and only keep enough on hand to supply the needs of their customers as they develop.

For example the 80 plants reporting to NATIONAL PETROLEUM NEWS show a current stock of less than 5,000,000 gallons available for shipment. Current production is only about 100,000 gallons per day from these plants which comprise about 60 per cent of the operating capacity of the Mid-Continent.

Refiners with their own cracking processes find that stove distillate makes an excellent cracking stock. They are willing to cut a recycle distillate in some cases but actually would rather allow the distillate cut to remain in the recycle gas oil and sell that product for home burners.

One of the largest distributors of stove oils in St. Louis found last



Trend of demand for stove distillate as indicated by shipments from 80 refineries in the Mid-Continent field. Heavy black line represents the shipments for 52 weeks ending each Friday from Jan. 1, 1927 to date. Dotted lines represent declines at the rate of 10 per cent and 20 per cent per year for purposes of comparison

One Gallon Pump

Pump 140Gal. tank Fittings

Type A

$27.00

other size tanks in stock

This pump was especially designed and built for the rural trade. The most attractive feature of this pump is its simple design, combined with efficiency and positive action.

The unit is fully equipped with 7 ft. ¾" hose, nozzle and foot valve.

VOLCKER MFG. CO.
Huntington, Indiana.

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winter that his business was about equally divided between distillate and the heavier oils. He sold about 25 per cent 30-32 fuel oil about 25 per cent 30-32 cracked gas oil and about 50 per cent stove distillate. A few years ago about the only market for gas oil and fuel oils was for heating apartments, hotels and business buildings or for industrial purposes.

Because of the low price of Mid-Continent crude oil the price of stove distillate has not been high enough to drive users to the heavier oils in the past 18 months. In 1926 the average price of 38-40 straw distillate was 4.846 cents per gallon at Group 3 refineries. It had risen gradually to that level over a 5-year period in which demand had been on a steady increase.

In 1927 the average price of 38-40 distillate dropped to 3.622 cents per gallon, a loss of 1.224 cents per gallon, due largely to the lower crude price. This year with crude still cheap and demand lighter, the price fell to an average of 3.14 cents per gallon for the first six months.

In recent weeks, refiners and jobbers have been negotiating contracts for the coming season. In most cases refiners have not been out pushing for contracts but have waited for buyers to inquire.

For the most part distillate contracts for next year are on a simple market-date-of-shipment basis with no maximum or minimum price protection for either party to the contract. The instruments merely are an agreement on the part of the jobber to buy and on the part of the refiner to fill the requirements of the jobber at the recognized market price.

In one instance a refiner is known to have sold about 2,000,000 gallons of distillate for next winter at a flat price. It is understood that the sale was made at 4 cents per gallon. One company which makes a standard white product has been selling it at an eighth of a cent over the 38-40 price. This product has a flash of 180 to 200 degrees F. Another special product with a flash point below 170 degrees F. which has been given a light treat is selling at a quarter of a cent over 38-40 light straw.

In cases where jobbers are demanding a maximum price for protection against possible advances next winter the refiners are insisting on a minimum as well. Most of these contracts will move with the market within the limits of about 3.25 to 4.25 cents per gallon.

Distillate contracts are being negotiated in connection with gasoline and lubricating oil business to a greater extent this year. That is, refiners are more ready to favor their regular customers for other products and in some cases will make distillate for new customers only when they will sign up for lubes and gasoline also.

One of the largest refiners in Oklahoma has made no contracts thus far. The manufacturing department of the company has not told the sales department whether any will be made next winter at all. So the sales department has had to turn away all inquirers thus far.

As the demand for distillate declines, the demand for low cold test, low flash gas oils is increasing. This has been indicated by the fact that buyers are offering a greater premium every winter for the free flowing oils which can be delivered easily at low temperatures and which will operate in burners under all weather conditions.

Excellent Buying of New Model Cars Reported

NEW YORK, July 30.—*Automotive Industries* this week said:

Large volume orders for new automobiles placed on the market in recent weeks gives indication of a large potential business which has been deferred pending the appearance of the new cars. Buying developed by the cars now in salesrooms promises to maintain factories producing them at capacity for at least several months. With the appearance later this month of several other important lines a very strong summer sales movement will be under way.

Factory operations generally are at an improved rate for the season and the effect of continued fair production is serving to maintain a better rate of operation in many contributing industries. Throughout the industry there is generally good production, the lower price classes in which there are no new models scheduled being favored by a lessening of the hesitation due to presidential year caution.

The Superheater Co., 17 East Forty-second street, New York, has off the press a booklet on its new stationary superheater entitled the "Elesco Superheater for Power Plants," which is claimed to effect fuel economy. About every phase of superheat is discussed, including requirements for proper superheater design. Many makes and types of boiler with an Elesco superheater are illustrated and described, and the part played by superheated steam in the power plant field today, basic definitions and its advantages are told.

Tom Crosby, Graver Corp., representative in Oklahoma and Texas for the past several years, has re-opened the old Graver office in the Atlas Life Bldg., Tulsa. In addition to the Graver line Mr. Crosby handles other oil field specialties.

Ohio's Lube Week To Be Oct. 20-27

CLEVELAND, July 28.—Lubrication Week will be held by Ohio motor oil marketers Oct. 20 to 27. This week has been picked by the directors of the Ohio Petroleum Marketers Association in preference to the week of Nov. 10 to 17 which had been selected originally.

In advance of the week tank trucks and service stations of the participating marketers will be placarded with fiber signs, 24 x 36 inches and printed in three colors. The signs will read:

October 20-27
LUBRICATION WEEK
Grease Your Car!
LET US—
Change Your Oil!
Sponsored by
Ohio Petroleum Marketers Association

Four-page folders will also be distributed to gasoline customers by service station salesmen, telling of thorough lubrication. Companies that use newspaper space regularly will be asked to devote some space to promoting the Lubrication Week idea.

It is the intention of the Ohio association members to acquaint the thousands of motorists who neglect proper car lubrication with the advantage and economy of having this work done expertly and regularly.

The season of the week will be such that motorists should change from summer to winter compounds in their transmission and differential cases and from a summer to a winter grade of motor oil.

The Lubrication Week idea was proposed early last spring by B. F. Connelly of Akron but there was insufficient time to make it a statewide affair at the season many motorists change from winter to summer lubricants.

National Cantube Co., Inc., 1330 North Halsted street, Chicago, manufacturer of a new grease container which it calls "Cantube," is now represented on the Pacific coast by the Paramount Sales Co., San Francisco. Miss A. E. Lattimore, of the Paramount company, is well known to oil trade on the coast. The coast territory covers California, Oregon, Washington, Nevada and Arizona.

COMPETITION IS LESSENED—DULL SEASONS DISAPPEAR WHEN YOU MARKET

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GREASE SPECIALTIES

GEAR LUBRICANT
PRESSURE LUBRICANT
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YARN GREASES
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GEAR SHIELD—CUTTING COMPOUNDS—SOLUBLE OIL BASE

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Gasoline And Other Motor Fuels

by Ellis and Meigs, is a book which gives a complete survey of the field and a description of practically every process of making gasoline and most other motor fuels of promise or prominence.

The price of the book is $10. Just send us your check and we will mail a copy of it to you.

National Petroleum News, 1213 W. Third St., Cleveland, Ohio

Phillips Petroleum Co. service station at Bartlesville, Okla. This is the standard design for Phillips built stations. Where possible the stations are build adjacent to trackage for gravity unloading of tank cars direct to underground storage

Phillips Builds Up Station Business To Good Gallonage in Short Time

TULSA, July 26

PIONEERING a new motor fuel the Phillips Petroleum Co. of Bartlesville, has made a remarkable success in building gallonage through a group of new company stations built in the southwest last winter.

The company not only was pioneering a new product for the motorist but was entering the distributing branch of the business with which it had had no contact in the past.

As an initial experiment in merchandising their new gasoline the company erected a group of five stations in Oklahoma, Kansas and Texas within a space of about two months. Four of these stations have sold an average of 800 gallons per station per day since their opening.

The fifth station was built in a residence district 22 blocks from the center of Amarillo, and has also maintained a high average.

For years the Phillips Petroleum Co. has been a producer of crude oil in the Mid-Continent and a manufacturer of natural gasoline. Its gasoline plants are now producing more than 500,000 gallons per day, the largest production achieved by any company in the United States.

Investigations of the research department of the Natural Gasoline Association of America and the extensive research department of the

By J. C. Chatfield
N. P. N. STAFF WRITER

Phillips Petroleum Co. in the past two years proved to the company that an excellent motor fuel can be made by including very large proportions of natural gasoline. It was established that by controlling the volatility of the natural gasoline through close fractionation it is possible to use two or three times as much natural gasoline as was thought feasible in the past.

After extended tests of their special motor fuels under the adverse conditions of extreme summer temperatures found in the southwest, the company was ready to try out the product on the public and opened its first station at Wichita, Kan. on Nov. 19, 1927. A two-day opening was advertised in Wichita papers and the response was so much greater than had been expected that the stock of 23,000 gallons was exhausted on the afternoon of Nov. 20 so that the station had to be closed until more gasoline could be brought in.

Two grades of gasoline are sold at the Phillips stations. One is known as "Phillips Aviation" and the other as "Phillips 66." The former grade is a 100 per cent stabilized natural gasoline and is the special aviation fuel such as was used by Art Goebel in his flight to Hawaii. The Phillips 66 is the regular price grade.

The figure 66 does not stand for the gravity of the product. As a matter of fact the motor fuel sold under that name is made with five different specifications. The fuel is manufactured to the one specification which the research department has been found to give best results at the season of the year when it is to be consumed and in the territory where it is to be sold. The Phillips 66 being sold in Amarillo in the summer will vary materially in specification from the fuel sold in Omaha or Minneapolis.

IT WILL be remembered that Dr. G. G. Brown of the University of Michigan, head of the research department of the Natural Gasoline Association, recommended in May, 1927, that refiners make four grades of gasoline for various mean atmospheric temperatures. He recommended one grade for temperatures below 20 degrees F., one for a mean temperature of 40 degrees F., one for 60 degrees F. and over and one for 90 degrees F. and over.

The Phillips research men have carried this even further in that they consider the barometric pressures prevailing in the district where

EVEREADY PRESTONE

(TRADEMARK)

For the Preparation of

The Perfect Anti-Freeze

"We expect to do twice as much business on it next season"

THAT'S what one dealer writes us about Eveready Prestone and that's how thousands of them feel about it. Eveready Prestone was such a tremendous success, following its announcement last fall, that many dealers have already stocked up and are waiting to feature this big winter profit-maker again as soon as cold weather starts. Get in on the rush of profitable business that will follow the big fall advertising campaign on Eveready Prestone.

Send in your order now for a stock of "the perfect anti-freeze." This winter make every car you service permanently winter-proof. Follow these suggestions for getting a car ready for winter operation and they will certainly pay you well in customer-satisfaction and future business: Remove accumulated rust and scale from the cooling system. Tighten all parts of the circulating system, including hose and pump connections, gaskets, expansion plates, drain cocks, pump glands and grease cups on water pump. Add water first, then Eveready Prestone and fill radiator only to within 4 inches of the top of the overflow pipe, to prevent loss by expansion. Complete directions are on the Eveready Prestone can.

This service is easy. It takes little time, makes extra business for the dealer and assures the customer the utmost satisfaction in winter protection.

Don't pass up the money-making opportunities there are in stocking Eveready Prestone. Order from your jobber early.

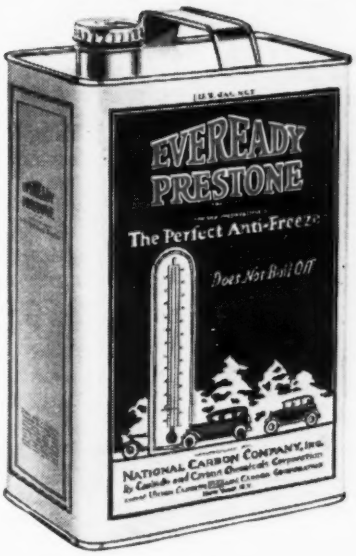
Manufactured for

NATIONAL CARBON CO., INC., New York, N. Y.

ATLANTA CHICAGO KANSAS CITY
LONG ISLAND CITY SAN FRANCISCO

By CARBIDE AND CARBON CHEMICALS CORPORATION

Units of Union Carbide UCC *and Carbon Corporation*



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Gallon TRADE MARK Tank
Dispensing KEROSENE Outfits
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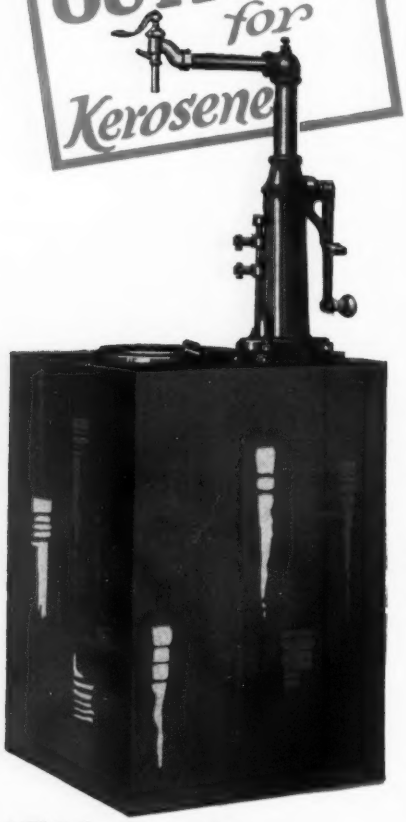
"Symbol of Quality"

SQUARE TANK OUTFITS for Kerosene



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PRECISELY ADJUSTABLE

MODEL 1065, 65-gallon capacity, 22" x 22" x 33½" high x 58" high over all Big Bertha Kerosene Tank Outfit with 14-gauge head and shell mounting Bennett exclusive 100% enclosed gallon, half gallon and quart dispensing kerosene pump with cylinder completely suspended within tank. All moving parts are enclosed and protected. Positive non-dripping shut-off nozzle is incorporated.

Other sizes, 120-gallon capacity, Model 1205 tank 28¾" square by 35½" high. Over-all height 60". Round outfits are Model 1060, 60 gal. capacity, 22⅜" diameter; and Model 1100, 110 gal. capacity, 30" diameter.

All tanks made of single pickle steel free from weak spots or pin holes and beautifully finished in your trade colors.

— Write for —

Complete bulletins on Big Bertha Round and Square Tank Outfits and Pedestal Pumps for dispensing kerosene and for dispensing gasoline to Muskegon. Bennett Export Corporation, 32 Broadway, New York City.

the gasoline is to be used in addition to the mean temperatures to be expected in the season when the motor fuel will be burned. This is because of the fact that liquids will boil more readily at high altitudes where barometric pressures are low than at sea level where the barometric pressure is at a maximum.

The ideal of the company is to produce a gasoline which will give uniform motor performance in a given car the year around. In winter the volatility is stepped up to give easy starting and quick acceleration with a cold motor. In summer the specifications are changed to give the same easy starting and acceleration without excessive volatility which might cause vapor locking in some carburetors.

Being convinced that their product was superior to the average run of gasolines, the Phillips management naturally wanted to prove their contention to motorists who are continually reading advertisements regarding more miles, anti-knock qualities and other claims for gasolines. They decided that the best way to offer proof would be to get every buyer back into the station for a second filling on the theory that the first fill would result in a mixture of Phillips gasoline with other motor fuel while the second would give the motorist a chance to burn 66 almost pure.

To achieve this the company offered every motorist who would fill his tank on the opening day, a coupon good for five gallons of gasoline at any future date. No strings were put on the offer but the company found very few customers who took advantage of them by buying 2 or 3 gallons to fill their tanks and get the five-gallon coupon. The average fill at Wichita was six gallons per car and at some of the later openings the average has run a little better than six gallons.

THE company has adopted the catch phrase "Phill-up and Fly with Phillips 66" which it uses in all its advertising. With this has been tied in the Goebel achievement. At all openings the company has had a group of young women dressed in flying togs to hand out the gasoline coupons and take the names and addesses of those accepting them. The coupons thus have served the double purpose of giving the company a mailing list of persons who have been interested by the advertising as well as bringing the prospective customers back again.

The company has made an effort to include a smile in its advertising. A little booklet handed out at stations entitled "Phill-up Phacts" warns customers to keep garage doors open when starting a car with Phillips 66 because, "She's an airplane gasoline and starts right now." Under the heading "Information for Highlanders" is a drawing of a kilted Scotchman with the note that Phillips 66 costs less because it carries a car farther.

"Pick up" is illustrated by a clever drawing of a young motorist trying to scrape an acquaintance with a lady who strangely enough is carrying a pair of roller skates in one hand.

Stations being built by the company follow a standard English cottage design like that shown in an accompanying photograph of the Bartlesville station. Stations are painted a soft green except for a touch of other colors carried in the fireproof shingle roofs. Driveways are not covered.

WHEREVER possible stations are being erected adjacent to railroad trackage so that gasoline may be unloaded direct from tank-cars to underground storage. This plan was followed at all of the first group of five stations. With this system the company is able to reduce handling costs and handling losses.

In building its own stations the company has not sought to put a large number of stations in any city. It prefers to put a single station in the average small city, only increasing that number when the city gets into the large class. It is the theory of the management that only by having a limited number of stations in each community will it be able to keep gallonage at a high level and insure an actual profit on the sale of gasoline as such.

In recent weeks the company has been expanding its distributing division through the purchase of existing properties. Purchases have been made of 24 service stations and 20 bulk stations mostly in Missouri from the E. M. Wilhoit Oil Co. and the Star Oil Co. Recently the Benzo Gas Motor Fuel Co. of Kansas City with seven bulk stations, 64 service stations and 400 additional outlets were bought.

Since taking over the Wilhoit stations the company has been holding formal openings with their new gasoline. The first was at St. Joseph, Mo. on June 21. On that day 31,000 gallons were sold through six stations with an average fill of 6.5 gallons per car served. Four openings are being held each week now. The Wilhoit stations are mostly two-pump stations while the standard Phillips station is equipped with four pumps, two for each grade offered.

It is an interesting fact that gallonage at the Phillips stations in the hot southwest has been growing since the warm weather has set in. It might be thought that customers would drift away to other stations in hot weather on the theory that high volatility is not necessary in the summer. The opposite apparently has been true.

How Air Service Helps Industry

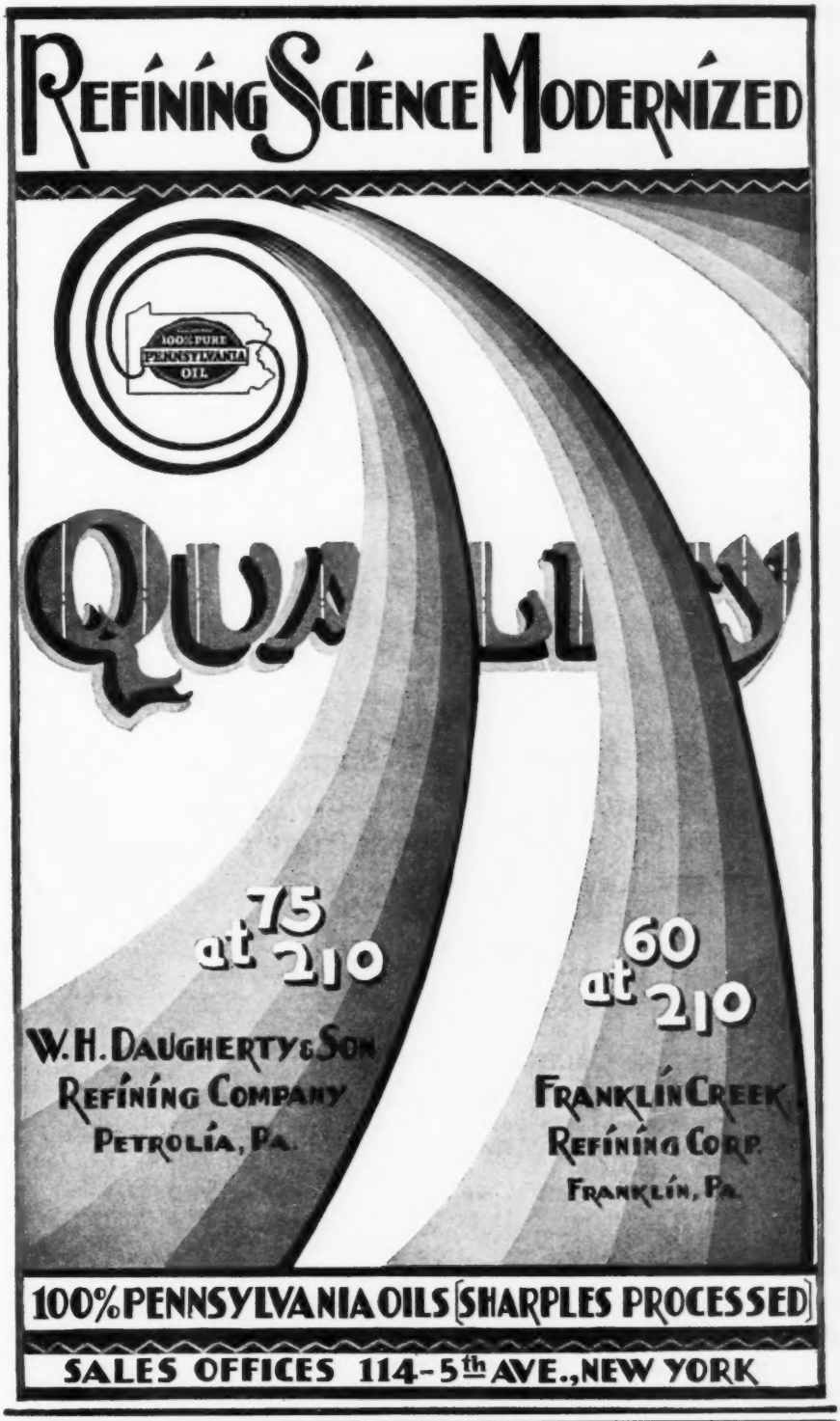
CLEVELAND, July 26.—H. C. Mulroy, vice president and traffic manager of the Marland Refining Co. Ponca City, Okla., has ordered all bills of lading covering cargoes exported by sea through the company's Texas City, Tex., terminal, sent air mail to New York City. These cargoes are sold f.o.b. Texas City and the revenue therefrom begins to draw interest as soon as bills of lading reach New York.

As each cargo is valued at somewhere near a quarter of a million dollars his company, even figuring interest at 4 per cent, makes $50 on the two days' saving in time to New York. Air mail also is used by the Marland company in expediting bills of lading on tank car shipments. Payment of demurrage on these shipments is avoided by sending the bills of lading air mail, the consignee receiving them before his oil shipment arrives.

The use of air express to speed delivery of drilling tool parts or other necessary pieces of equipment to distant leases is well known. An example occurred recently when a drilling crew in a remote field in Texas broke a small part that could not be duplicated by the supply stores in nearby towns. A manufacturing company in Cleveland was wired for the missing part and it was promptly entrusted to the air express in Cleveland. Six hours after it left Cleveland the part was in Chicago and an hour later it was on the Chicago-Dallas plane and it was dropped off at Fort Worth within 24 hours from the time it was ordered.

A tanker while loading at Richmond in San Francisco Bay suffered an injury to its engine which would prevent its sailing on schedule time. Wires were exchanged with an eastern factory and the repair part sent out air express. The day the ship was scheduled to sail the part arrived and the vessel cleared through the Golden Gate only a few hours behind schedule. If the parts had gone by express the vessel would have been tied up four days, paying wages to the crew, berthing expense and all the items which pile up when a ship is idle.

While air mail and express have been steadily increasing, business firms regard the new low air mail rates which went into effect August 1 as a real boon to business. The new air mail rates permit you to send a full ounce, an envelope and four ordinary sheets of paper, for 5c by air mail to any part of the United States on or off air mail routes.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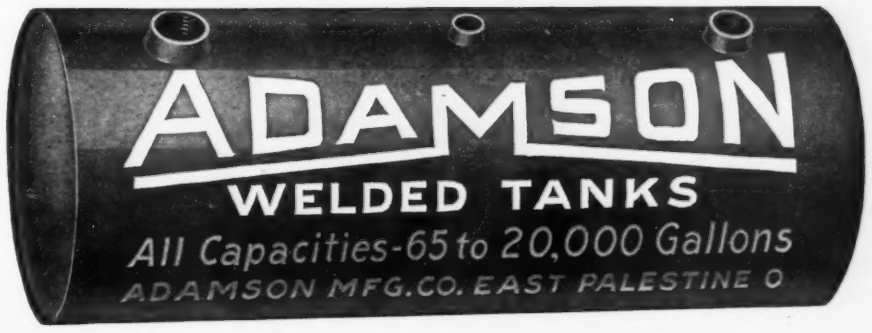
100% PENNSYLVANIA OILS SHARPLES PROCESSED
SALES OFFICES 114-5th AVE., NEW YORK



what—

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We have it—for shipments in straight or small 3-compartment tank cars, or carloads from refinery, and LCL from Chicago.

"REAL PENN" specifications

LIGHT		MEDIUM	
Gravity	30.3	Gravity	29.8
Flash	435	Flash	445
Fire	500	Fire	510
Viscosity	250 @ 100	Viscosity	350 @ 100
Cold Test	15/20	Cold Test	15/20

HEAVY		SUPER-BRIGHT	
Gravity	29	Gravity	27.5
Flash	465	Flash	560
Fire	530	Fire	630
Viscosity	70-75 @ 210	Viscosity	140 @ 210
Cold Test	20/25	Cold Test	30/25

From a controlled supply of Butler County, Pennsylvania, amber color crude—transported from wells in refinery's own pipe line.

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QUALITY GUSTAFSON SERVICE

WHOLESALE DISTRIBUTORS OF PETROLEUM PRODUCTS

ON THE LAZY BENCH

National Petroleum News

Not Matrimony But Money

Colored Woman: "I wants to see Mr. Hamlin."

Office Boy: "Mr. Hamlin is engaged."

Colored Woman: "Go long, boy. I don't want to marry him. Tell him his washlady wants huh money."

—*Magnolia Oil News.*

* * *

"What made you give up singing in the choir?"

"I was absent one Sunday, and someone asked if the organ was mended."—*Pennico News.*

* * *

But can you imagine a man naming his child Montgomery Ward simply because it was of the male order?

—*Union Oil Bulletin.*

* * *

The golfer nonchalantly stepped up to the tee and swung one of those carelessly careful drives. The ball sailed straight down the fairway, leaped gayly across the green and dived into the hole like a prairie dog.

"What have you suddenly gone crazy about?" inquired the golfer's wife, who was trying to learn something about the game.

"Why, I just made a hole in one!" yelled the golfer as he essayed a double handspring with a wild gleam of delight in his eyes.

"Did you?" sweetly said the little woman. "Please do it again, dear. I didn't see you."

—*Skelly News.*

* * *

"Are you the man that pulled my husband out of the lake after he'd gone down?" inquired a portly red-faced woman of the man pointed out as the rescuer.

"Yes, Madam," answered the rescuer, expecting a demonstration of gratitude, "but I only did my duty as anyone else would have, and deserve no special—"

"Well, where's his necktie?"

—*The Loreco Diamond.*

* * *

Most of the family were at the window viewing the parade. Suddenly one of them said, "Where's auntie?"

"Upstairs," came the answer, "waving her hair."

"Mercy," exclaimed the horrified member of the family, "can't we afford a flag?"

—*Barnsdall.*

* * *

After wondering thousands of years how to arrange her hair woman finally decided to cut it off.

—*Stanolind Record.*

Met His Waterloo

Betty was milking the cow when a mad bull tore over the meadow. To the astonishment of others who had fled to safety, the bull stopped within a few yards of the milking maid, turned, and ran away.

"Weren't you afraid? Why did he run away?" they asked.

"He got scared," returned Betty. "This cow is his mother-in-law."

—*The Pure Oil News.*

* * *

Visitors were present.

"Daddy, may I have a dime?" asked little Georgie.

Dad obliged, with a smile.

"This time you won't make me give it back after the company's gone, will you, daddy?" was little Georgie's loud remark.

—*Skelly News.*

* * *

Dinner, unfortunately, was a little late, and a guest asked the hostess whether she would be kind enough to play something.

Seating herself at the baby grand, she executed an admirable excerpt from Wagner. She finished, but there was still a few more minutes to wait, and in the rather pained silence she turned to a deaf old gentleman on her right and asked:

"Would you like a sonata before dinner?"

Her guest gave a start of surprise and pleasure.

"Thank you," he replied. "I had a couple on the way here, but I think I could manage another."

—*Magnolia Oil News.*

* * *

"I played golf for the first time."

"How did you make out?"

"Fine! Made a home run right at the start. I batted the ball into the tall grass in left field and ran around the entire course before they found it."

—*Barnsdall.*

* * *

You can tour the world now on the instalment plan. Imagine falling down on the payments in Afghanistan.—*Pennico News.*

* * *

Far worse than a giraffe with tonsilitis is a centipede with ingrowing toe nails.

—*The Pure Oil News.*

* * *

Wife—"I've put your shirt on the clothes-horse, Jim."

Jim—"What odds did you get?"

—*The Loreco Diamond.*

Reinforced Folio

362—A very compact folio, having three pockets. Made from the best grade smooth black cowhide. Stiffened bottom reinforced with metal studs. Case contains six 4-oz. bottles and five grease jars. Two inner cases may be carried.

Less 10% for Cash

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A BETTER, more thorough way to wash your dirty waste and wiping cloths is the Oakite way. A money-saving way, too, because it leaves them soft and absorbent—like new, even after many washings.

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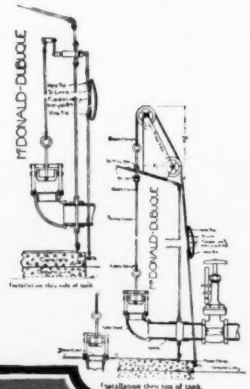
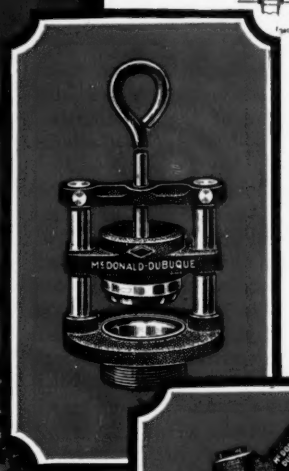
Industrial Cleaning Materials and Methods

McDONALD

Relief Gate Valve
Plate 858
(Patents Pending)
A double purpose valve with a by-pass arrangement that relieves excess pressures in pipe lines.





Safety Check Valve
Plate 849
(Patented 2-23-26)
An internal storage tank valve that controls tank contents when line is broken or removed.

New Hose Nozzle
Plate 817-FF
(Approved by Underwriters' Laboratories)
Delivers gasoline in record time. Combines speed with rugged strength comfortable grip, perfect balance and positive leak-proof construction.

For the man who insists on safe, economical oil handling equipment, there is but one choice—McDONALD.

A copy of our catalog should be in your hands. Send for it today.

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QUALITY LEADERS FOR OVER 70 YEARS

McDonald Products come to you only after exhaustive tests—mechanically PERFECT. They retain this perfection over surprisingly long periods of service.

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Turn to McDonald for all your Oil Handling Equipment and get products that have stood the test of time — are unconditionally guaranteed — and are acknowledged as the standards of value throughout the world.

IT PAYS TO BUY McDONALD PRODUCTS.

"The Home of the Swing Joint"

A. Y. McDONALD MFG. CO.

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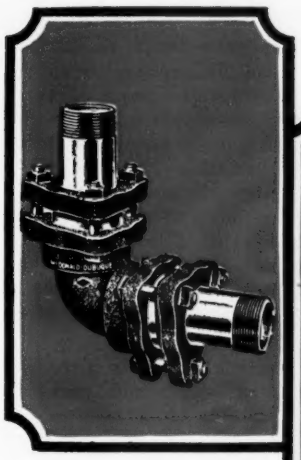
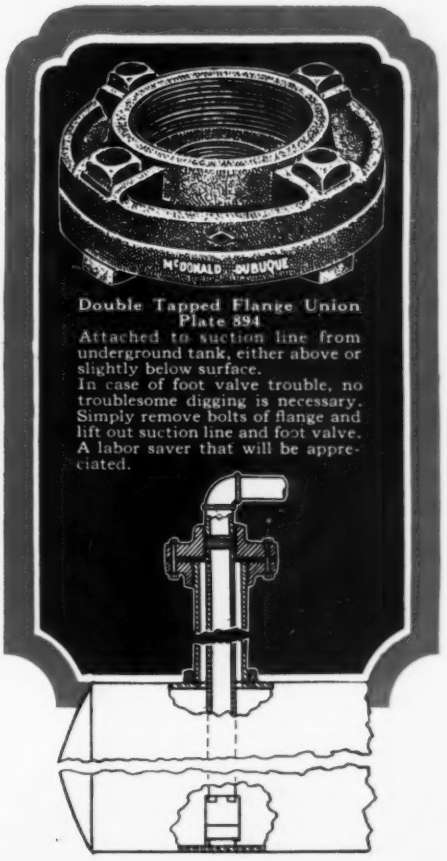


Double Swing Joint
Plate 814
(Patented 7-2-12)
McDonald Swing Joints give you the flexibility and leak-proof construction necessary at refineries, bulk stations and service stations.

Duplex Tank Vent
Plate 834
(Patented 1-3-11. Approved by Underwriters' Laboratories)
Automatically relieves pressures as tanks are emptied or filled. Wire screen prevents back fire.

Foot Valve
Plate 818
Absolutely guaranteed
Sizes: 3", 1", 1¼", 1½" and 2".



Double Tapped Flange Union
Plate 894
Attached to suction line from underground tank, either above or slightly below surface.
In case of foot valve trouble, no troublesome digging is necessary. Simply remove bolts of flange and lift out suction line and foot valve. A labor saver that will be appreciated.

How Important Petroleum Tests Are Applied and What They Show

THIS is the fourth installment of the treatise on "Significance of Tests, prepared by a sub-committee of Committee D-2 on petroleum products of the American Society for Testing Materials. The work is being published serially in NATIONAL PETROLEUM NEWS *by special permission.*

The purpose of the treatise is to tell in simple language the object of each of the recognized tests used by buyers and sellers of petroleum products, and their relation to quality of products. The first installment was published on page 60 of the July 11 issue of NATIONAL PETROLEUM NEWS *and the second on page 26 of the July 18 issue and the third on page 29 of the July 25 issue.*

VOLATILITY

VOLATILITY may be defined in general terms as the tendency of a product to change from the state of liquid to that of vapor. For petroleum products it is determined by means of a variety of specific tests, which for purposes of convenience are discussed under the following headings:

1. Flash and fire tests;
2. Distillation tests;
3. Vapor pressure and evaporation tests.

Flash and Fire Tests

The flash point of a product may be defined as the temperature to which it must be heated in order to give off sufficient vapor to form an inflammable mixture with air. The fire point may be defined as the temperature to which a product must be heated in order to burn continuously after the inflammable air-vapor mixture is once ignited. The fire point test is less frequently used than the flash point test and in a majority of instances adds nothing to the information furnished by the results of the latter.

Flash point tests were originally employed to indicate the fire hazard of petroleum products. Their use has, however, been extended and they are frequently employed to give information which does not relate to fire hazard.

The flash point of a substance varies with the apparatus and procedure employed in making the test. For this reason it is always necessary to specify apparatus and method when reporting flash point figures.

A large number of so-called "flash testers" have been devised and used. Some of the more important ones will be discussed later, but for the present it is desirable to mention the characteristics and utility of the two general classes: (1) closed cup testers; and (2) open cup testers.

When flash point is determined as an index of fire hazard, the closed type of tester is unquestionably preferable to the open cup type. The greatest element of danger incident to the handling or storage of petroleum products is the explosive ignition of vapors in the unfilled portions of tanks, drums or other containers. The closed cup tester permits measuring the temperature which the oil must reach before it gives off enough vapor to create an explosive mixture in a closed system, and, therefore, comes closer to paralleling actual conditions than does the open cup. In addition, closed cup testers are in general more accurate than the open cup type, which is a consideration of importance when matters of safety are involved.

The chief advantages of the open cup testers are cheapness and simplicity in operation. For many purposes the results they yield are sufficiently accurate to meet all practical requirements.

The flash points of different petroleum products vary over a wide range. The more volatile gasolines and naphthas flash at temperatures considerably below 0 degrees F. Certain special naphthas, largely used as paint thinners and solvents, have closed cup flash points between approximate limits of 80 and 110 degrees F. The normal closed cup flash point range for kerosene is 100 to 160 degrees F. Gas oils and fuel oils generally have flash points between 150 and 300 degrees F., and the majority of lubricating oils have flash points between 275 degrees F. and 650 degrees F.

It is theoretically possible to test the whole range of petroleum products with a single flash tester but in actual practice it has been found best to use three instruments. A closed tester with a water bath and without a stirrer in the cup is best for the naphtha-kerosene group of products. For the testing of fuel oils, gas oils, etc., a closed tester without a water bath and with a stirrer in the cup is preferred. Lubricating oils can be tested with the necessary degree of accuracy by the use of a simple open cup tester.

Scope of Flash Test Methods: (*a*) *Instruments Suitable for Kerosene and Naphtha.*—The flash point of naphtha and kerosene is determined as an index of fire hazard and it is, therefore, essential to use a closed cup tester, designed and operated to yield the greatest possible degree of accuracy. General experience has indicated that careful control of the rate of heating is essential to accuracy and the use of a water bath as a medium for transmitting heat to the oil under test is the most effective means of accomplishing this end.

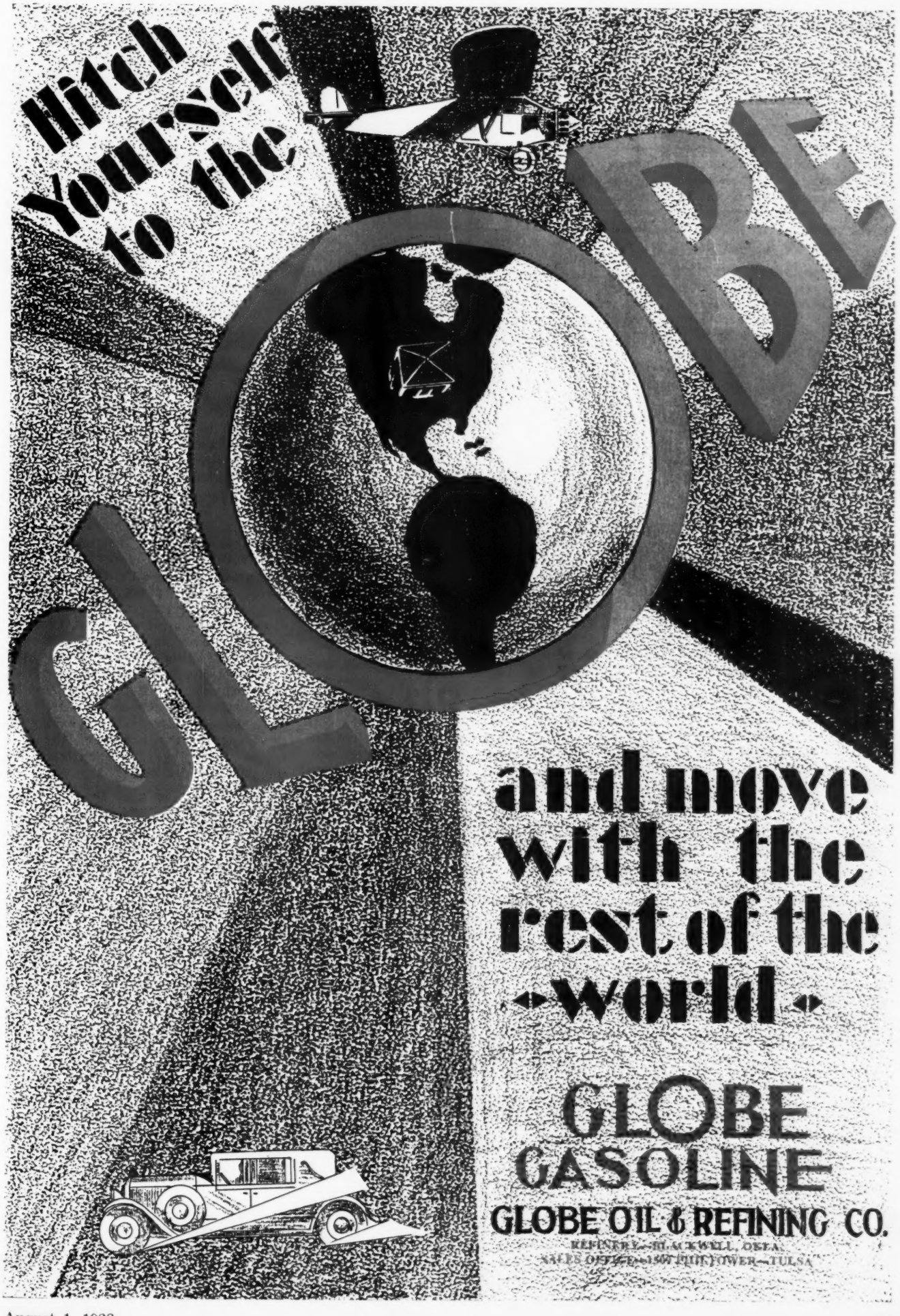
The Tag closed tester (A. S. T. M. Standard Method D 56-21[1]) meets the requirements outlined and is official with the United States government. The Abel closed tester,[2] which is official with the British government, is equally suitable and is largely used in this country by oil companies doing an export business. Its chief disadvantage, as compared with the Tag closed instrument, is that it is considerably more expensive and not as easy to obtain. Another closed tester that is important in Europe is the Abel-Pensky, which is a modification of the Abel, equipped with an automatic timing device for the operation of the mechanism which opens the shutter and depresses the test flame.

In this country a large number of states have oil inspection laws on their statute books and most of these laws include specifications prescribing a minimum flash point limit for kerosene. A number of different testers are approved, among them the Elliott, Foster, and Tagliabue open cup. Of these the Elliott seems to be the best but none of them is as accurate or as convenient to use as the Tag closed, the Abel or the Abel-Pensky instruments.

(*b*) *Instruments Suitable for Gas Oil and Fuel Oil.*—The flash point of gas oil and fuel oil is determined as an index of fire hazard, and a closed cup tester should, therefore, be used. Fuel oils frequently have high viscosities and stirring of the oil during the test is essential to insure maximum accuracy. The working ranges of temperature are too high to make practical the use of a water bath as

1 1927 Book of A. S. T. M. Standards, Part II, p. 300. For a detailed report of the work which led to the adoption of the Tag Closed Tester, refer to *Proceedings*, Am. Soc. Testing Mats., Vol. XVII, Part I, pp. 402-450 (1917).

2 "Standard Method of Testing Petroleum and Its Products," Inst. of Petroleum Technologists, London, pp. 18-23 (1924).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and move with the rest of the world
GLOBE GASOLINE
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SALES OFFICE—1507 FIRST TOWER—TULSA

a medium for transmitting heat.

The Pensky-Martens closed tester (A. S. T. M. Standard Method D 93-22[3]) is used almost exclusively, the world over, for determining the flash point of fuel oil and gas oil. Other instruments are of almost negligible importance, except possibly the Luchaire which is used to some extent in France. Open cup testers are sometimes used for fuel products, but usually only in cases when the oils have flash points so much above specification limits that there is no need for a high degree of accuracy.

(c) *Instruments Suitable for Lubricating Oils.*—Practically all lubricating oils have flash points sufficiently high to eliminate the question of fire hazard; the use of the closed cup instrument, therefore, is not essential, and the degree of accuracy attainable through the use of an open cup is adequate for practical purposes. The Cleveland open cup (A. S. T. M. Standard Method D 92-24[1]), is almost universally used in the United States for the testing of lubricating oils, and has the desirable feature of cheapness and simplicity of equipment, adaptability to a wide range of products and adequate accuracy.

The Marcusson open cup is largely used in Europe for testing lubricating oils and gives results very close to those obtained with the Cleveland. The Pensky-Martens closed tester is also used very largely for testing lubricating oils and is satisfactory for all but the group of so-called cylinder oils. With these it is difficult to get satisfactory agreement between duplicate tests. The use of the Pensky-Martens tester for lubricating oils has very little practical justification, especially in view of the fact that for products of high flash point its accuracy does not exceed that of the open cup instruments mentioned above. The Pensky-Martens tester is at its best in testing products having flash points between 150 and 230 degrees F. From 230 to about 450 degrees F., its accuracy may be rated as equal to that of the Cleveland open cup, and above 500 degrees F. it is notoriously unreliable.

(d) *Instruments Suitable for Miscellaneous Products.*—There are a number of petroleum products that are not classed either as (1) kerosene and naphtha, (2) gas oil and fuel oil, or (3) lubricating oils. The proper type of flash test apparatus to be used for any of them is indicated by the general principles indicated above. Thus, for example, an asphalt or road oil which prior to use is heated in open pots to a fairly high temperature should be tested in the Cleveland open cup or its equivalent. A viscous crude oil of low naphtha content should be tested the same as a fuel oil, in the Pensky-Martens.

Scope of Fire Test Methods: Fire tests should always be made with open cup instruments, by continuing the heating and applications of the test flame after the flash point has been reached. A. S. T. M. Method D 92-24, involving the use of the Cleveland open cup, includes directions for determining fire point. Certain lubricating oils, notably the so-called steam-refined cylinder stocks, are sometimes classified on the basis of fire test and this property has, therefore, some commercial importance, due to trade custom. Flash point is, however, more generally used as an index for classifying and identifying lubricating oils and is generally preferred.

Fire point requirements are occasionally encountered for kerosene. The determinations are made with instruments that are practically obsolete and the test figures themselves are of negligible value as compared to flash point figures obtained by the use of an approved type of closed-cup tester.

The whole question of fire point can be summarized by the statement that knowledge of this physical property adds little to the information that can be obtained from flash point figures. No further mention will be made of fire point in the present discussion.

Significance of Flash Test Results: The practical significance of the flash test as related to certain petroleum products has already been discussed in connection with the selection of suitable instruments and methods. For the class designated as kerosene and naphtha, fire hazard is the principal consideration. No one test or property is a complete index of fire hazard, but flash point is universally regarded as the most important. It is an index of the probability of ignition and under usual conditions it is more important to know whether or not a product is likely to ignite than how it will behave after it is actually afire.

In discussing fire hazard and the importance of flash test in this connection, it is impossible to avoid a question as to what particular temperature limit differentiates between safety and danger. There are wide variations in the flash point requirements for kerosene enforced by different municipalities, states and countries, and the whole proposition seems complicated and confused until a very simple basic principle is recognized. Actually, kerosene is not safe simply because it has a flash point of, say 100 degrees F., but it is safe because the users have learned to treat it with the degree of care which is essential for a product which can be ignited if it is warmed above this temperature. Kerosene with a flash point of 90 degrees F. is just as safe as kerosene having a flash point of 100 degrees F., if users are accustomed to it and are familiar with the precautions necessary in handling it. As a matter of fact it can be stated without much exaggeration that gasoline is just as safe as kerosene, provided the person using it knows that it is a volatile product capable of being ignited at any ordinary temperature. This same gasoline would, however, be a dangerous commodity in the hands of a user who thought it was kerosene.

There is, of course, a minimum safe limit for flash point, which is fixed by the conditions of temperature occurring in the equipment in which kerosene is burned. This limit, however, seems to be tolerably low, probably somewhat under the lowest figure that is specified by any of the existing American legal regulations. The requirements in effect are designed chiefly to provide safety in the storage and handling of the oil, and they accomplish this end by insuring against the marketing in a given community or district, of kerosene which flashes more readily than the product to which the users are accustomed. A great deal might be said in favor of standardizing the flash test requirements for kerosene the world over, but so much difficulty would be encountered and so little benefit derived, either by producer or consumer, that it seems best to accept the situation as it exists and recognize the fact that safety is measured by the habits of the user rather than by the physical and chemical properties of the oil.

Fire hazard is also the important consideration when gas oil or fuel oil is tested for flash point. Here again there is a relation between specified minimum flash and accepted practice in handling and use. For domestic installations the usual minimum limit for flash point is 100 degrees F., and for commercial installations, particularly those which utilize products of viscosity sufficiently high to require preheating, the customary requirement is a minimum of 150 degrees F.

For a large number of petroleum products, notably the class of lubricating oils, flash point is not determined as an index of fire hazard but rather for purposes of identification and classification. The interpretation of figures is not simple and as a general rule it may be said that the flash point of a lubricating oil bears no direct relation to its usefulness. Flash point tests are useful to refiners in controlling the manufacturing process. The usual practice in writing specifications is to attempt to identify certain types of oils which are known through experience to be

3 1927 Book of A. S. T. M. Standards, Part II, p. 395.

1 1927 Book of A. S. T. M. Standards, Part II, p. 404.

Make this test yourself

Take several 4-ounce bottles of gasoline. Include a bottle of PARCO. Expose them to the sunlight indefinitely and you will find that the poorly refined gasoline will show—

1—A Milky Appearance.
2—A Yellow Color.
3—Yellow, Brown or Black Deposit which is Not Soluble in Gasoline.
4—A Disagreeable Odor.

PARCO, *on the contrary, is GUARANTEED to be stable in color and will retain its Crystal White Color and Sweet Odor indefinitely without the slightest trace of any deposit whatsoever.*

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Our modern Refinery at Parco was built to advantageously supply Northwest jobbers. . . . . .

Our Refining Facilities at West Tulsa and Blackwell mean advantageous freight rates for Southwest and Central States jobbers.

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a gasoline which has not color stability *will*

1 Look bad in your pump bowls.

2 Deposit gum on the screens and in the gasoline lines of your customers' cars.

3 And possibly corrode the brass and copper engine parts which it contacts.

Get a sample of PARCO from any of our Division Sales Offices. Test it—compare it with other gasolines. You'll find PARCO'S Guaranteed Crystal White Color entirely stable, its sweet odor constant, its anti-knock value high — a *highly cracked, pure premium motor fuel,* WITHOUT PREMIUM PRICE.

Order a car of PARCO. *Our nearest office will gladly quote.*

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Seasonably Volatile . . . Anti-knock

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Now days you don't have to drive very far to find a filling station. Like the saloons in the gay nineties you will find one on most any corner. To-day, business has changed; to make a profit you must sell more than just gasoline and motor oils.

Quality and friendly helpful service, courteously rendered, are all stock in trade of the man who hopes to come out on top. And it is a significant fact that the most successful, the men making the most profit are selling petroleum products of quality—*Cushing Products.*

A wire or letter will bring quotations.

58-60 U. S. Motor Gasoline
64-66-375 E. P. Aviation
41-43 W. W. Kerosene
36-38 Straw Distillate
32-36 Gas Oil Uncracked
22-26 Fuel Oil (Cushing or
24-26 Fuel Oil Blackwell)

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suitable. Existing methods for determining the actual usefulness or value in lubricating oils are not satisfactory and in general it may be stated that the use of flash point limits in lubricating oil specifications is actually a makeshift to compensate for a large factor of ignorance.

The flash point of an oil may serve as a rough indication of its tendency to vaporize. The occurrence of foaming in the course of a flash point determination is a rather sensitive qualitative indication of the presence of moisture in the sample that is being tested.

Distillation Tests

A distillation test involves the general procedure of vaporizing the liquid under test and recording a set of figures indicating the relation between temperatures in the distilling vessel and quantities of distillate that have been liquefied by the condenser. There are many possible variations in the details of a distillation test, both as regards apparatus and procedure, and the observations that are made. For present purposes, discussion will be confined to the general principles involved and to the two or three specific methods that are of greatest importance. The distillation test is particularly applicable to products which are vaporized in the course of their use, but also serves for identification and classification of other products.

Petroleum products are complex mixtures of hydrocarbons containing large numbers of individual compounds. When they are boiled, the vapor given off at any instant is only moderately less complex than the liquid, and is usually subjected to some sort of treatment, designed to simplify its composition, before it passes into the condenser. This treatment, which is variously referred to as fractionation, rectification, dephlegmation, etc., involves decreasing the proportion of the less volatile constituents in the vapor. Fractionation may be effected either by partial condensation, which liquefies more of the high-boiling than of the low-boiling hydrocarbons, or by allowing the vapor to come in contact with a counter current of distillate maintained at a temperature below its boiling point; or by a combination of these two effects.

Laboratory stills are occasionally encountered which operate with a practically negligible degree of fractionation; the composition of the vapor that leaves the liquid being unchanged until it enters the condenser. Such stills are not particularly useful and are rarely used.

A large proportion of the more common laboratory distillation methods involve a certain degree of fractionation, which is in general incidental and due to the cooling of the

vapors in the necks of distilling flasks. This fractionation is effected chiefly by partial condensation, but there is, of course, a certain amount of contact between the reflux current of condensed distillate and the rising current of vapor. This general method of distillation does not furnish exact information as to the true boiling points of the constituents comprising a petroleum product, but it can, if properly standardized as to details of apparatus and procedure, be made to yield results that are closely reproducible. Methods of this sort have the added advantage of simplicity and convenience, and though subject to theoretical objections are, and probably always will be, the most important type used by the petroleum industry.

Oil testing laboratories are called upon from time to time to predict what products can be made in a commercial way by the fractional distillation of particular crude oils or partially refined fractions of crude oil. Many methods have been devised to provide the necessary data and the majority of them involve the use of devices intended to fractionate the vapors. These devices are commonly referred to as fractionating columns, dephlegmaters, or still heads. There are in existence a number of general types and many variations of each type. An adequate discussion of the merits of various "still heads" is beyond the scope of the present discussion.[1]

Scope of Distillation Methods:

Methods Suitable for Gasoline, Naphtha and Kerosene.—The A.S.T.M. standard method of test for distillation of gasoline, naphtha, kerosene and similar petroleum products (D 86—27),[2] is almost universally used in the United States for the products mentioned. It has been standardized in detail and is capable of a very satisfactory degree of accuracy. The A.S.T.M. standard method of test for distillation of natural gas gasoline (D 216—27)[3] is very similar, but includes minor modifications which are desirable for the handling of the special product covered. Both of these methods are essentially the European Engler method, improved to permit attaining better reproducibility.

These methods are of the general type involving a moderate degree of fractionation effected by condensation and reflux in the neck of the flask. There are occasionally instances when gasoline or other volatile petroleum products are tested by methods involving the use of some sort of a still head, but none of these methods has been prescribed in sufficient detail to warrant considering it as standardized.

Method Suitable for Gas Oil.—The A.S.T.M. tentative method of test D 158—25 T[4] includes a procedure for the distillation of gas oil. This method is similar in principle to those mentioned above but involves the use of a somewhat larger flask and a larger quantity of oil. This method has been developed for the purpose of obviating the difficulties encountered when an attempt is made to distill gas oil according to the procedure which has been adopted for naphtha and kerosene.

Methods Suitable for Crude Petroleum and for Unfinished Petroleum Products.—The A.S.T.M. tentative method of test for distillation of crude petroleum (D—28 T)[5] outlines apparatus and procedure for determining the percentage which distills below some selected temperature point. This method is intended to provide information as to the relative gasoline contents of different crude oils and does not cover a procedure for the complete assay of a crude oil sample.

Bureau of Mines *Bulletin No.* 207[6] describes a procedure which was devised for determining the general characteristics of crude oil samples. This method has been rather extensively used and data on the properties of a large number of crude oils are available, as determined by this method. It is not, however, a method designed to give results in terms of commercial refining operations, and although it has, with suitable modifications, been used for this purpose, these modifications or simplifications have not been given any official recognition.

Another well known method for the distillation assay of crude petroleum is the so-called four point control method[1] which was developed primarily for the purpose of estimating the percentage of U. S. Motor gasoline in California crude oil.

Numerous other methods have been developed and used, but are not covered by published descriptions. Practically all involve the use of stills equipped with fractionating columns, and many of the variations are due to the fact that the methods were devised for the purpose of duplicating the yields and qualities commercially obtained by some specific refinery.

Significance of Results:

Distillation tests yield results which are expressed in terms, not of one, but a number of figures. The discussion of the significance of results is therefore complicated by the fact that a given test may tell a number of things, some of which are

1 See "Distillation Principles and Processes," by Sydney Young, MacMillan and Company, London (1922).

2 1927 Book of A. S. T. M. Standards, Part II, p. 378.

3 1927 Book of A. S. T. M. Standards, Part II, p. 387.

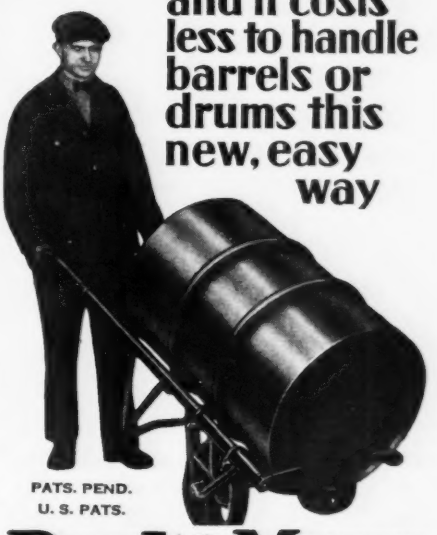
4 *Proceedings*, Am. Soc. Testing Mats., Vol. 25, Part I, p. 732 (1925); also 1927 Book of A. S. T. M. Tentative Standards, p. 411.

5 See p. 89.

6 "The Analytical Distillation of Petroleum and Its Products," by E. W. Dean, H. H. Hill, N. A. C. Smith and W. A. Jacobs, U. S. Bureau of Mines *Bulletin No.* 207, 1922.

So Much SAFER

and it costs less to handle barrels or drums this new, easy way

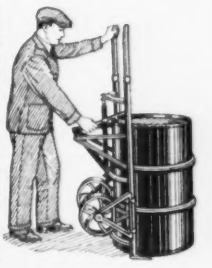


PATS. PEND.
U. S. PATS.

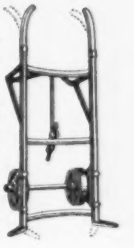
Barl Movr

The truck with a twist of the handles

HANDLING barrels and drums, an awkward task by hand, has been turned into a simple job with the Barl Movr. Just wheel the Barl Movr right up to the drum, slip the adjustable hook over the chime, and pull back on the handles. The twist of the handles swings conveying toes under the drum, holding it firmly for trucking.



Barl Movr eliminates the danger of rolling drums, which often get out of control, causing breakage or injury. This extra factor of safety is coupled with a tremendous saving in time, because one man with a Barl Movr can wheel more drums than two men can roll by hand.



Barl Movr is a sturdy all-metal truck, curved to hold any drum or bilged barrel, large or small.

Barl Movrs are sold only where they can show a saving. Write for details of special free-test, to be made in your own plant. No obligation. Just pin coupon to your letterhead.

Des Moines Foundry and Machine Company
Des Moines, Iowa

Make This Free Test in Your Own Plant

Des Moines Foundry & Mach. Co.,
Dept. A-1, Des Moines, Iowa.

We want to find out how Barl Movr will help us make drum-handling quicker and safer. Please send complete information on your free-test plan.

Firm Name_____

Street No. _____

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Confidence

THE easy visibility, the plain markers, the graduated measuring tubes, the positive stop action of Correct Measure visible pumps, instill in the customer confidence of accurate measure, without entire dependence on faulty gasoline gauges.

The foundation upon which a thriving business is built—the answer to "repeat sales"—the mother of satisfaction—is *Confidence.* Customer confidence in product and producer cannot be thrust aside as unimportant to be replaced by unscrupulous merchandising methods.

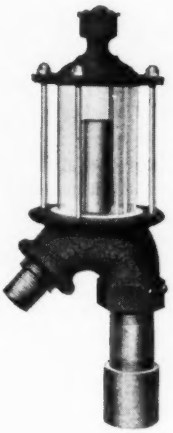
Correct Measure pumps, carefully calibrated for absolute accuracy, are your guarantee of customer confidence. "Sold on Sight" is the verdict of hundreds. Two-fold in meaning—beautiful in appearance—Correct Measure pumps beckon the motorist with their symmetry of lines—confidence in getting exactly what he pays for, stimulates increase in your sales.

The working parts of the large gusher capacity pumping unit are accurately machined. High powered, speedy operation—seven strokes of the handle throws 5 gallons on the hand operated model or 6 seconds on the electric model. Easy to install due to the new cross level feature, embedded in the body which is a constant check on the position of pump.

We will be pleased to mail illustrated literature, prices and free installation plans to interested oil marketers on request.

C O R R E C T

C-Flo



OUR C-Flo, Model 101, visible gauge for blind pumps is a device that has attracted widespread attention among oil marketers. It makes blind pumps visible and accurate, inspires confidence in your trade and acts as a display for the various colored gasolines. Simple to install, low in first cost, the C-Flo is constructed with the same infinite care that is given other Correct Measure equipment.

C-Flo Junior
(Model 102)

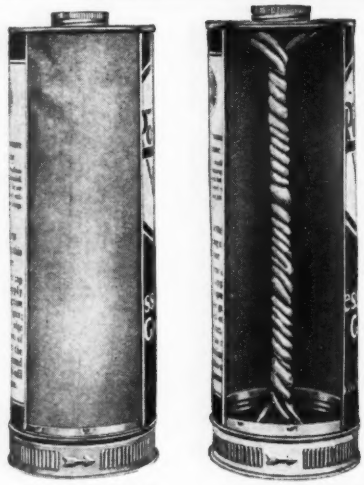
TO supply the great demand for a small, inexpensive visible gauge for blind pumps, we have introduced the C-Flo Junior, model 102. Smaller than the C-Flo, this gauge embodies the same accurate features enjoyed by the larger model.

CORRECT MEASURE

TRADE MARK REG. U.S. PAT. OFF.

MODEL 10-H
10 Gallon Hand Operated

CORRECT MEASURE COMPANY
ROCHESTER, PENNA.



The CANTUBE full — The CANTUBE empty

Turn the bottom and out it comes!

Change to the
CANTUBE

way of marketing your grease. It'll pay!

The Cantube is now being made in sizes up to three pounds.

Write for literature and samples today—NOW.

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and all kinds of plate work, either welded or riveted.

We are ideally fitted to build welded tanks to your specifications.

Every tank is a guaranteed job.

THE ALLIANCE TANK CO.
ALLIANCE — OHIO

Please send prices on the tanks which are checked above—

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significant and some not. For present purposes an attempt will be made to discuss in detail the significance of distillation results as applied to several products. The general principles illustrated can be applied to other products.

Motor Gasoline.—The general requirements for volatility of motor gasoline are:

1. (*a*) The gasoline should contain enough readily volatile constituents to permit starting an engine under reasonably unfavorable conditions, without preheating. It should also be possible to operate the engine with a reasonable degree of flexibility during the period while it is warming up to optimum operating temperature.

(*b*) The gasoline should not contain so large a percentage of highly volatile constituents as to be liable to excessive evaporation losses or to premature vaporization in carburetors or fuel lines.

2. The gasoline should not contain any considerable percentage of relatively heavy, slightly volatile constituents which will not, under ordinary conditions, vaporize completely enough after atomization into the manifold to permit even distribution to the various cylinders of any engine. These heavy ends are also undesirable because they tend to dissolve in the oil on the cylinder walls and increase dilution of the oil in the crank case, although the design and method of operation of the car also has an important effect upon the amount of dilution.

These general requirements are taken care of by specifying:

(1) *a.* That the gasoline contains an adequate percentage of constituents distilling below some moderately low temperature. This is usually accomplished either by specifying a maximum temperature for 20 per cent off or a minimum percentage off at 100 degrees C. (212 degrees F.). Limits of this type insure the presence of sufficient low-boiling material to permit satisfactory starting of engines.

b. The exclusion of an excessive proportion of highly volatile or "wild" constituents can be effected in several ways. The most satisfactory and effective requirement is a minimum permissible recovery of distillate in the receiving graduate at the end of the test. This in effect limits the percentage that cannot be liquefied in passing through the condenser tube and thereby differentiates in a practical way between desirable and undesirable volatile constituents.

(2) The presence of high-boiling constituents is usually limited by specifying a minimum permissible percentage which distills below some temperature, such as 392 degrees F., well up in the normal distillation range of gasoline. It is also general practice to place a maximum limit on end point. There is no definite evidence that both of these points need be specified and the percentage at a selected high temperature is the more significant. The common practice of grading gasoline on the basis of end point cannot be endorsed, because end point alone is an unreliable criterion of quality.

Natural Gas Gasoline.—The three factors of volatility that are of importance with natural gas gasoline are:

1. Percentage distilling below 100 degrees C. (212 degrees F.) or other temperature used as the reference point for the motor gasoline or naphtha which is to be made by blending the natural gas gasoline with less volatile refinery stock.
2. Freedom from more than traces of absorbent oil.
3. Minimum content of constituents which are excessively volatile.

The first requirement is taken care of satisfactorily by specifying a minimum percentage at 100 degrees C. (212 degrees F.). The second requirement is taken care of by specifying maximum end point, and the third requirement is covered by specifying a minimum percentage for recovery of liquid products at the end of the distillation.

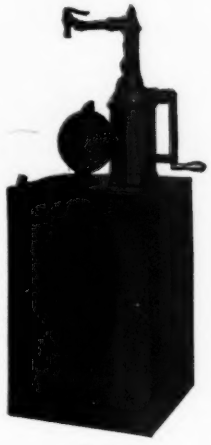
Kerosene.—The distillation of kerosene does not yield much information of value except possibly in cases when it is necessary to ascertain the presence of fractions of excessively high boiling point, which may tend to clog or crust the wick of a burner. Kerosene is sometimes used as a fuel for internal combustion engines and in such cases the volatility requirements bear a certain degree of similarity to those of gasoline.

Gas Oil.—So-called gas oils are used for a variety of purposes. The name originally signified that they were suitable for carbureting and enriching manufactured gas, and this is still an important use. Gas oil is also an important raw material for the manufacture of gasoline by cracking processes. It is sometimes employed as fuel oil for the generation of heat and power and is used as fuel for the types of internal combustion engines generally classified as heavy oil engines.

The significance of volatility in relation to these uses is not definitely established and the most important function of the distillation method, as applied to gas oil, is to determine its suitability for cracking in processes of the pressure distillation type.

1 Howard C. Vesper, *Industrial and Engineering Chemistry*, Vol. 18, pp. 64-67 (1926).

R 6050
R 6051



S 6550
S 6551

SERIAL NO. 65

WIZARD

Gasolene — Kerosene — Alcohol Dispensing Equipment

WIZARD ROUND KEROSENE AND LUBRICATING OUTFITS are made in 60 and 110 gallon capacities. Pumps made with either bolted base or screw base. Also made with or without one quart and two quart quantity stops.

WIZARD SQUARE KEROSENE AND LUBRICATING OUTFITS made in 65 and 120 gallon capacities. Pumps equipped with or without one quart and two quart quantity stops. Tanks are internally braced to prevent bulging. Both round and square units are made with 9" fill opening, 9" non-tipping steel fill cover arranged for padlock, 9" removable screen. Pumps are furnished with Wizard air-tight brass shutoff nozzle and foot valve.

These units are sturdy, compact, rainproof and dustproof.

WIZARD ALCOHOL PUMP is equipped with combination 1½" and 2" base, telescopic intake pipe to fit 15 to 55 gallon barrels, oak tanned special alcohol treated leather piston, drain pan and airtight brass shutoff nozzle with bottle filling tube.

Wizard Kerosene and Gasoline Pumps for Underground Tanks

Serial No. 66—A Wizard completely enclosed one gallon pump, equipped with one and two quart quantity stops. Complete with a Wizard air-tight brass shut-off nozzle, 1" foot valve, and special treated cup leather piston. With locking and sealing device.

Overall height 64" Handle height 50"

Serial No. 65—A Wizard completely enclosed one gallon gasoline pump equipped with one and two quart quantity stops. Complete with 8' length of ¾" metal lined gasoline hose, nozzle, 1" foot valve, and special treated gasoline cup leather piston. With locking and sealing device.

Overall height 64" Handle height 50"

Wizard equipment is finished with baked enamel which makes them oilproof, durable and easy to keep clean.

THE NATIONAL STEEL BARREL CO.

3860 East 91st Street Cleveland, Ohio

Branch Offices in Principal Cities

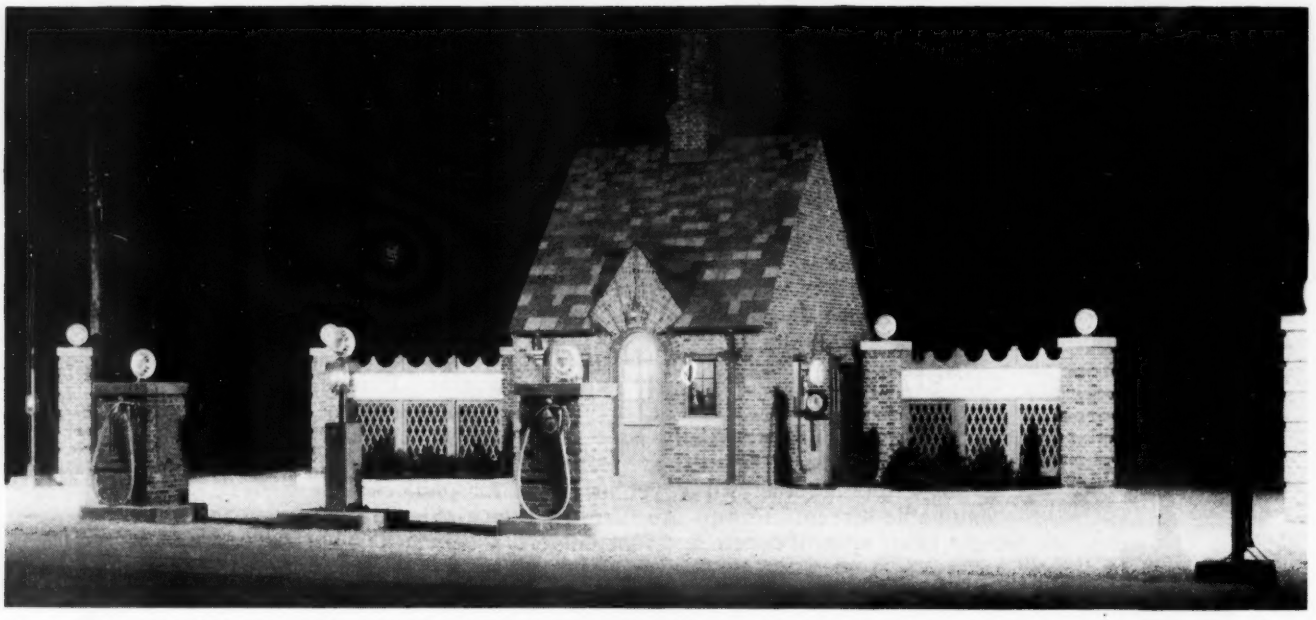
OIL, GREASE, ALCOHOL AND KEROSENE EQUIPMENT

R 11060
R 11061

No. 80 Alcohol Pump

SERIAL NO 66

Brick of 1859 is Used in This Station



From an old ramshackle blacksmith shop rises this beautiful monument to the automobile. It is the old story of the town eyesore transformed into a beauty spot by an oil company. American Oil Works Co., Titusville, Pa., is the owner

TITUSVILLE, PA., July 28.—The horse lost another round to the automobile when the American Oil Works Co. opened its attractive, antique English type filling station here at the corner of Franklin and Water streets in April. An old dilapidated blacksmith shop, the eyesore of the town, occupied the site of the station formerly.

When the oil company began razing the shop, it discovered that it was built of old hand-pressed clay brick, some of which had the year 1859 scratched on it. The brick was cleaned and the company decided to use it. It was laid in the Flemish bond method, which produced the result you see in the accompanying photograph.

The station is equipped with two double-faced brick pedestal meters, an illuminated oil fountain, an auto lift, air stands, compressors, and other modern gasoline and oil dispensing equipment.

Gallonage at the station has been steadily increasing, according to A. B. Weingard, treasurer and general manager, and motor oil and grease business has been satisfactory.

The company recently opened a bulk and service station in Erie, and has recently purchased three bulk and service stations in Jamestown, N. Y. A station is being built at Franklin.

A distillation test gives a rough index of the pressure-temperature curve and tells whether, with a predetermined maximum working pressure, it is possible to heat the oil hot enough to effect satisfactory conversion into gasoline.

No reliable information seems to be available regarding the influence of volatility upon the performance of gas oil used as fuel in heavy oil engines. The present tendency of designers of this sort of equipment is to build engines which will burn any sort of oil that can be injected into the cylinders in a proper state of atomization.

Manufacturers of carbureted water gas seem to regard the distillation test as of some assistance in identifying oils of good "cracking" characteristics. The figures for volatility mean little or nothing in themselves, but when studied in parallel with figures for gravity and other physical constants they tell something about the origin of the product in question, and thereby give an indication as to how it will break up in the cracking retorts.

There is one special type of product falling in the gas oil class for which volatility is a property of direct importance. Gas-absorbent oils for natural or manufactured gas, must have initial boiling points well above the final boiling points of the products which are to be absorbed. The distillation test is sometimes used to determine this important property of absorbent oil, although it happens that the open-cup flash or fire test serves almost as well and has the advantage of greater convenience and simplicity.

Crude Oil and Partially Refined Stocks.—The distillation test as applied to crude oil and partially finished stocks, such as crude naphtha, is generally made for the purpose of estimating what yield and quality of some specific finished product can be obtained.

Vapor Pressure and Evaporation Tests

Vapor Pressure

The vapor pressure of a substance is a measure of its tendency to vaporize and is expressed in units of pressure, for example, pounds per square inch. Vapor pressure increases with temperature, and the temperature at which the vapor pressure of a liquid equals atmospheric pressure is the normal boiling point of the liquid.

Various methods have been developed and described for the approximate measurement of the vapor pressure of volatile petroleum products, such as natural gasoline and motor gasoline, at temperatures both above and below the initial boiling points of the products, but none of these methods has come into general use nor has the procedure been thoroughly standardized.

The so-called vapor pressure test of the Bureau of Explosives[1] is an empirical method and does not measure true vapor pressure. This method has come into general use in this country for classifying petroleum products for transportation by rail, and inasmuch as the results obtained by its use are generally satisfactory for the purpose for which they are obtained and have come to have definite trade significance, there is little

1 M. C. L. No. 147.

THERE! That's the Kind I mean!

--- said the Lady!

Their tank was nearly empty but she had made her husband pass several pumps until they came to the kind she had been talking about---with the gasoline waiting for them in plain sight, in a big glass globe.

It was a--- QUALITY **TOKHEIM**

Cut 660 Hand Operated

10 Gallon Visible Pump

Its waiting measure-full of shimmering, iridescent gasoline intrigues the women and inspires confidence in the minds of men. Quicker service too, because they don't have to wait for pumping.

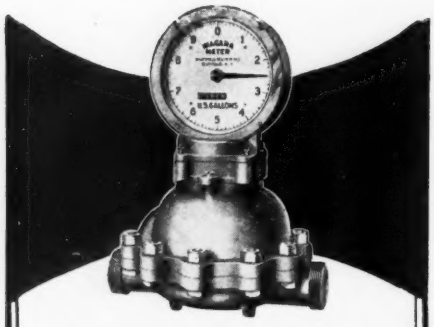
Tomorrow's Pump, Today

The highest development of visible dispensing by the pioneer in the manufacture of visible gasoline pumps.

Simple, speedy, and easy to operate. Cut 660, equipped with an ingenious Centralized Control, unique Oiling System, Positive Pre-determined Quantity Stops, Interlocking Features and 100% Accurate Million Gallon Continuous Recording Meter makes this pump the most advanced in visible gasoline dispensing equipment.

For the mechanical reasons back of these positive virtues, write for our Bulletin.

Tokheim Oil Tank & Pump Co.
Fort Wayne, Indiana



Automatic Measurement

WHEREVER automatic measuring is desired, Niagara Oil Meters are in constant demand because of their accuracy and dependability in measuring all petroleum products. If you are still depending on measurements taken by stick gauges, pails, etc., many gallons are passing through the pipes unchecked and extra profits are slipping through your fingers.

Decide today to investigate the real economies of Niagara Oil Meters. They are made in sizes ranging from ½ inch to 6 inches, among which is a type and size that will meet your individual requirements.

BUFFALO METER COMPANY
2889 Main Street Buffalo, New York

Niagara Oil Meters
"The Constant Guardians of Liquid Profits"

En-ar-co MOTOR OIL
White Rose GASOLINE

YOU will make money if you handle these nationally advertised brands.

All grades of lubricating oils and greases.

The National Refining Co.
Cleveland, Ohio

No. 6 Green on Midwest Golf Course

Prairie Dog Towns Are Hazards On This Golf Course

CASPER, Wyo., July 27

SPEAKING of golf, which is now a major department of the oil industry, those players who think highly of their own game are invited to try the course in the north part of the Salt Creek field.

The accompanying picture was taken from No. 3 tee and looking down on No. 6 green. The term green, of course, really means a patch of the alkaline soil stripped of its sage brush and bunch grass, oiled and rolled. The picture gives an indication of the hazards with which this course abounds. There are some which are not shown. Gophers, prairie dogs and ground squirrels make this region their home and they have an annoying habit of picking up golf balls which they promptly take home underground to their loved ones.

This is a regularly organized club, operating under the name Midwest Golf Club. Membership includes drillers, pumpers, gang superintendents, general superintendents and Midwest Refining Co. and Standard Oil Co. officials. There is a club house and a professional. The course is nine holes, par on which is 36 and they do say that a fair number of the members who live in the field and play it regularly make it a little under par now and then. It is a popular course and one can see field men of large size and great vigor out there disporting themselves who a few years ago were a bit supercilious about golf.

The crack golfers of the A. P. I. are invited to try their hands on this course if they want to toughen themselves.

---

likelihood of a change to any other method.

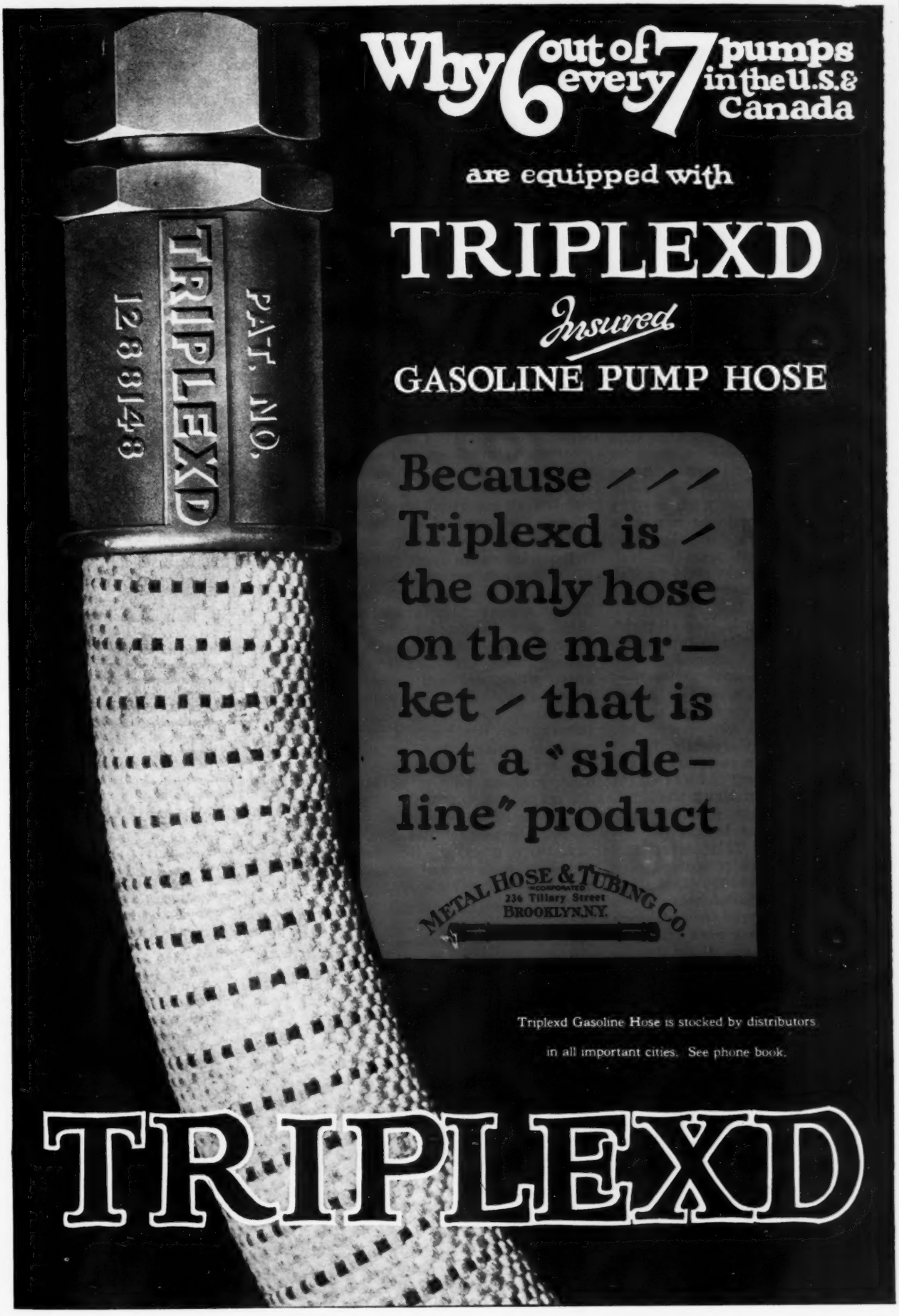
Spot Test One of the tests frequently specified for the examination of volatile petroleum products, used as paint and varnish thinners, is the so-called "spot test." This test appears in various forms and modifications, of which the best known is probably Method 120.11, appearing on page 64 of Bureau of Mines *Technical Paper No. 323A.*

The test is supposed to be a simple, rapid and delicate method of determining whether a product is free from constituents that do not evaporate readily. Actually, it seems to be a very unsatisfactory and unscientific substitute for a properly interpreted distillation test. The "Spot Test" could possibly be developed and modified into a reproducible quantitative method, but an attempt to do this would rob it of simplicity which is its chief claim for merit. It is usually necessary to make a distillation on products for which the "Spot Test" is employed, and if this is done the latter becomes superfluous.

Evaporation Test Specifications for lubricating oils occasionally include a requirement of the following general type:

"The oil when heated for .... hours at a temperature of .... shall not lose more than .... per cent."

There are numerous modifications of this clause and details of the working procedure are almost always omitted. The results are likely to be quite variable even if details are specified. Flash and fire point tests provide adequate information regarding the tendency of a lubricating oil to evaporate and there seems to be no justification for continuing the use of so-called evaporation test.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are equipped with
TRIPLEXD
Insured
GASOLINE PUMP HOSE
Because / / / Triplexd is / the only hose on the mar- ket / that is not a "side- line" product
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Triplexd Gasoline Hose is stocked by distributors in all important cities. See phone book.
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TRIPLEXD

Export Gasoline Buying Brings Cheer to Western Refiners

TULSA, July 26

JULY has passed into history and the gasoline export buying which dropped in on the Mid-Continent refiners early in the year is still present, very much the life of the party and apparently enjoying the refiners' reception so well that there has been no effort made as yet to pack up and go elsewhere for July and August. In fact the situation would indicate the export business is wanting to step along at a faster pace than the refiners can maintain.

A survey of the export buying in the Mid-Continent for the first four months of 1928 was carried in the May 23 issue of NATIONAL PETROLEUM NEWS, page 17. At that time there was considerable speculation among the trade as to how long the exporters would be interested in the Mid-Continent. It was generally agreed that there would be buying in May and possibly in June, but that if the custom of past years was followed July and August would be dull months as far as export buying was concerned.

The buying held up in May all right. It held up through the entire month of June. And now after July has passed exporters are more active than ever. They want gasoline and are having difficulty in obtaining it, even in the face of price advances of approximately 1 cent since July 1.

Figures based on a summary of the Mid-Continent refinery stories in NATIONAL PETROLEUM NEWS would indicate that more than 8,000,000 gallons of gasoline were bought for export during May. This figure and the one following are considered conservative in view of the fact that there were a few odd lot sales which were not revealed until several days after the weekly totals were compiled.

A summary of stories for the same month last year shows that only 2,000,000 gallons of gasoline were bought for export.

Buying in June this year was even stronger than in May. Between 12 and 15 million gallons were bought. This compared with less than a million gallons in June, 1927.

In excess of 6,000,000 gallons of gasoline were bought the first 15 days of July, as compared with no purchases reported for the same period last year. During the past two weeks exporters have attempted to buy goods in all areas, with approximately 1,500,000 gallons reported sold prior to the time this was written.

Reports from north Texas indicated refiners in that area are completely sold up for the next two weeks, with the possible exception of two refiners. Exporters were attempting to obtain from these refiners the goods they had in storage, offering 9.50 cents for the 64-66, 375 end point gasoline.

The buyer for a large export company recently was instructed by his eastern office to buy a half to three quarters of a million gallons of 60-62, 400 e. p. gasoline. This company normally does not buy this grade, but had an opportunity to sell a cargo of gasoline provided a part of it was gasoline of those specifications.

Inquiries were sent through the Mid-Continent but the buyer said he was unable to get a single offer. Refiners making this grade told him they were having such a good domestic demand they did not want to change their runs and work on an order which required more exacting specifications unless the price was so attractive they could not refuse. Others told the buyer they did not want to change their runs to make this grade at present with demand for other products holding up so well.

Exporters have been quick to keep pace with the advances in prices for domestic grades of gasoline. At the same time prices at the Gulf export terminals have moved upward as the buying prices advanced.

The accompanying table shows the prevailing prices for U. S. Motor and 64-66, 375 e. p. gasolines in Group 3 and at the Gulf on May 1 and July 16 this year, as well as the prevailing prices for the same grades at the corresponding periods a year ago.

Keeping in mind the fact that the freight rate from Oklahoma to the Gulf port terminals is 1.45 cents per gallon for gasoline, it will be observed that neither on May 2 or July 16, 1927, was the difference between the prices of gasoline in Oklahoma and at the Gulf anywhere near this freight cost. That in itself is sufficient explanation of the slow export demand from the Mid-Continent in 1927. It also will be observed that the price advance for gasoline at the Gulf between May 2 and July 16 was smaller than the advance for gasolines in Oklahoma.

On May 1, 1928 the difference between gasoline prices in Oklahoma and at the Gulf were sufficient to give exporters a little profit after paying the freight and handling charges. It also will be noted that the advances in prices at the Gulf have kept more nearly in line with the advances in Oklahoma, than was the case a year ago.

COMPARISON OF PRICES FOR TWO MAJOR GRADES OF GASOLINE AT THE GULF AND IN OKLAHOMA (GROUP 3) ON MAY 1 AND JULY 16, 1927 AND 1928

U. S. Motor	May 1 1928	July 16 1928	Change	May 2 1927	July 16 1927	Change
F. O. B. Gulf ports	8.6875	9.6875	+1.000	7.000	7.4375	+0.4375
F. O. B. Group 3	7.0265	8.3916	+1.3651	6.375	7.1971	+0.8221
Difference between Gulf and Group 3	1.6610	1.2959		0.625	0.2404	
64-66, 375 E. P.						
F. O. B. Gulf ports	9.4375	11.125	+1.6875	8.000	8.4375	+0.4375
F. O. B. Group 3	7.4167	8.75	+1.3333	7.125	8.0625	+0.9375
Difference between Gulf and Group 3	2.0208	2.375		0.875	0.375	

Street Cars On Way Out, Says F. R. Fageol

CLEVELAND, July 30.—Street car systems run by gasoline engines and on rubber tires instead of on rails by electricity, will supplant the modern type entirely within 20 years, Frank R. Fageol, told the bus division of the American Automobile Association at a recent convention, according to Automotive Industries.

Mr. Fageol is president of the Twin Coach Co. which has been active for several years in the manufacture of improved motor coaches for city and surburban service. Mr. Fageol said:

"The claim can no longer be sustained that fixed rail cars are more efficient in handling mass transportation than the modern motor coach, and since this is such a recent development and so very few people are really familiar with its significance, it is only natural that the general trend of thought is that rail type transportation units are the only practical means of handling mass transportation. I am firmly convinced that fixed rail urban and suburban transportation will ultimately disappear from our streets; however, I believe it will take 20 years to make any appreciable change and the aim and effort of all people truly interested in the economics of the situation should be to work in harmony and develop ways and means for gradual substitution of motor buses for rail cars to the end that the great public investment in rail systems shall be conserved and, insofar as possible, returned to the investors.

Chicago Pneumatic Tool Co., 6 East 44th St., New York City, has appointed W. S. Lynch, formerly district manager at Seattle, Wash., to succeed T. G. Smallwood as district manager at Cincinnati, O. Mr. Smallwood has obtained a leave of absence on account of ill health.

No. 96 GOLDEN

HIGHEST AWARD
for General Excellence

HIGH FLASH
HIGH FIRE
LOW COLD TEST
PALE COLOR
LOWEST CARBON CONTENT
PERFECT DEMULSIBILITY

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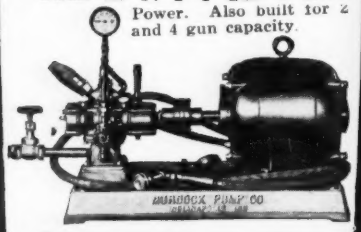
The highest award given by the Sesqui-Centennial Exposition—"The Medal of Honor"—was granted the Sun Oil Company for General Excellence of Products.

This award only emphasizes what tests—both in the laboratory and in actual use—have already proven.

SUN OIL COMPANY
PHILADELPHIA

COMPLETE SERVICE-
INCREASES YOUR BUSINESS
BUILDS GOOD WILL
MAKES YOU MORE MONEY

Model H. P. 2—1 Gun—3 Horse Power. Also built for 2 and 4 gun capacity.



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A money maker that broadens your service, and draws more buyers to your station.

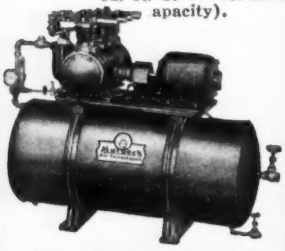
BUILT LIKE A FIRE ENGINE PUMP

Low priced—Easily and Cheaply Installed

It washes cars better and faster so easily. Terrific direct water pressure (no air) cleans the chassis, while a handy adjustable nozzle permits the finest of mists for the body. It is built to serve indefinitely.

Write for complete details.

Model A. C. 14 (14 cu. ft. of air per min. capacity).



MURDOCK AIR COMPRESSOR

A sure fire business booster that supplies a constant, economical supply of air.

This neat, ruggedly constructed compressor is an example of direct drive efficiency (no belt, no lost power) and troubleproof simplicity. Investigate immediately and cash in on the increased business its super service will bring you.

Write for Literature.

MURDOCK PUMP CO.
INDIANAPOLIS, U.S.A.

Work Is Progressing on Third Report on Conservation

Staff Special
WASHINGTON, July 30

THE nomination of Herbert Hoover for the presidency and the selection of Hubert Work to be his campaign manager have caused much speculation as to what effect those facts would have upon the Federal Oil Conservation Board.

For the time being they mean that no new steps will be taken. It is assumed that they will be too busy with their political tasks to give enough thought to that board to produce anything new. However, the preparation of the third report of the board is going forward, because, before the nomination or the selection, the materials had been gathered and the report outlined to such an extent that what is being done now is in the nature of routine under the management of the staff headed by Mr. Rochester, secretary of the board.

In the eyes of the public Dr. Work has been the conservation board. However, it is doubted whether the doctor would claim anything of the sort, especially in view of Mr. Hoover's intimate acquaintance, not only with the problems of the oil industry but of a large number of other industries. All dovetail into each other to such an extent that a man of Hoover's habits of thought, it is believed, could not be content to be a mere figure on a board to say yes or no as some associate might suggest. In fact, Mr. Hoover is credited with having had as much to do with Dr. Work's idea as the author himself.

The idea is called Work's because it was he who, in his annual report for 1925, suggested the appointment of the board. President Coolidge took up the suggestion and initiated the move.

A thought quite widely held in Washington among the men who have had much to do with the board is that, although not one word has been added to or taken from the statutes, the large aim of the board has been accomplished. The great accomplishment of the board, in their way of looking at the matter, is that it has roused the class consciousness, so to speak, of the oil industry to such an extent that the once despised word "conservation" has become the brightest in the oil industry's dictionary. Since the creation of the board proration has become almost as much a part of the technique of production as drilling.

One of the technical advisers of the board, in a general talk with the NATIONAL PETROLEUM NEWS, pointed out that the board has been the one point where all elements of the industry have felt at home to come and talk about its troubles. It has enlisted the efforts of the leaders in the industry to put forth their ideas as to what should be done. They have shown enough pride in that matter to think hard on the subject not merely in an after-dinner speech sort of way.

When the leaders first began talking with and for the benefit of the board there was a certain amount of blah-blah and seeming insincerity. Not now, however. The talk is straight from the shoulder and with a view to having something accomplished for the industry, which, of course, means something for the country.

A big result of the public discussion of the problems and the attitude of the four cabinet members constituting the board is believed to be the neutralization of the public officials, both state and federal, whose stock in trade, in part, has been the breathing of fire and brimstone in the way of suggestions that the anti-trust laws would be applied to men who thought it in the public interest to regulate the production of crude oil so the industry would not be ruined by floods of oil that could not possibly be used. The official who now suggests the use of anti-trust laws when men get together to prevent waste has wholly disappeared from view.

The public has been educated, largely through the work of Mr. Hoover's Department of Commerce staff, to the point where it realizes that overproduction or waste, the latter resulting from the duplication of sizes of commodities, are items for which it must pay, sooner or later and that the better course is to assure orderly production in the fewest sizes. Of course the oil industry has never been greatly bothered by the production of hardly distinguishable grades of the various sorts of refined products. Its trouble has been chiefly that of a needed production.

On account of Mr. Hoover's devotion to simplification and standardization of commodities the thought is that if he is elected president, the oil conservation board not only will be continued but will be kept busy so long as the problem of orderly production of petroleum has any phases not satisfactory to the disciple of orderliness and simplicity.

No one in Washington has any idea as to what would happen to the board or to the standardization and simplification plans of Secretary Hoover, the aims of which are identical in substance, were Governor Smith elected to succeed President Coolidge.

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended July 27 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended July 27	Total Week Ended June 29
Plants Reporting	12	28	28	12	80	80
Crude Capacity	92,000	157,200	127,600	54,900	431,700	431,700
Cracking Capacity	30,700	52,600	17,200	22,700	123,200	122,300
Da. Av. Crude Runs	71,799 — 2.2	111,749 — 7.9	94,714 — 4.3	59,872 + 1.5	338,134 — 4.2	323,328
Da. Av. Other Oils	4,947 — 25.8	3,098 — 59.9	7,579 + 36.4	1,020 — 37.7	16,644 — 22.9	13,807
GASOLINE—Gallons						
Stocks, July 20	11,689,000	31,993,000	16,195,000	2,757,000	62,634,000	78,220,000
Prod. 7-20 to 7-27	10,130,000 — 7.3	18,265,000 — 10.9	10,270,000 — 0.5	5,263,000 — 2.4	43,928,000 — 6.8	41,073,000
Ship. 7-20 to 7-27	11,012,000 — 4.6	22,051,000 — 1.8	10,765,000 — 8.4	4,995,000 — 1.0	48,823,000 — 3.9	43,753,000
Stocks, July 27	10,807,000 — 7.5	28,207,000 — 11.8	15,700,000 — 3.1	3,025,000 + 9.7	57,739,000 — 7.8	75,540,000
Ratio Sales to Prod	108.7%	120.7%	104.8%	94.9%	111.1%	106.5%
KEROSENE—Gallons						
Stocks, July 20	7,986,000	4,505,000	1,508,000	527,000	14,526,000	14,393,000
Prod. 7-20 to 7-27	2,138,000 + 2.7	2,839,000 + 15.4	1,556,000 — 2.7	227,000 — 61.7	6,760,000 + 0.4	6,390,000
Ship. 7-20 to 7-27	1,711,000 + 99.6	3,750,000 + 17.8	1,251,000 — 25.9	340,000 — 46.3	7,052,000 + 10.8	6,078,000
Stocks, July 27	8,413,000 + 5.3	3,594,000 — 20.2	1,813,000 + 20.2	414,000 — 21.4	14,234,000 — 2.0	14,707,000
Ratio Sales to Prod	80.0%	132.1%	80.4%	149.8%	104.3%	95.1%
STOVE DISTILLATE—Gallons						
Stocks, July 20	2,171,000	2,491,000	509,000	77,000	5,248,000	4,670,000
Prod. 7-20 to 7-27	354,000 + 9.3	392,000 + 2.9	108,000 — 39.3	90,000 — 8.2	944,000 + 3.3	681,000
Ship. 7-20 to 7-27	364,000 + 9.3	317,000 +115.6	80,000 + 45.5	101,000 + 27.8	862,000 + 40.4	571,000
Stocks, July 27	2,161,000 — 0.5	2,566,000 + 3.0	537,000 + 5.5	66,000 — 14.3	5,330,000 + 1.6	4,780,000
Ratio Sales to Prod	102.8%	80.9%	74.1%	112.2%	91.3%	83.8%
GAS OIL—Gallons						
Stocks, July 20	7,333,000	36,966,000	3,067,000	5,471,000	52,837,000	55,280,000
Prod. 7-20 to 7-27	2,030,000 + 7.6	2,709,000 + 23.1	1,854,000 + 14.1	3,371,000 + 48.1	9,964,000 + 24.8	7,213,000
Ship. 7-20 to 7-27	1,701,000 — 46.9	1,228,000 — 51.4	1,197,000 + 40.7	3,554,000 + 49.5	7,680,000 — 14.2	6,473,000
Stocks, July 27	7,662,000 + 4.5	38,447,000 + 4.0	3,724,000 + 21.4	5,288,000 — 3.3	55,121,000 + 4.3	56,020,000
Ratio Sales to Prod	83.8%	45.3%	64.6%	105.4%	77.1%	89.7%
FUEL OIL—Gallons						
Stocks, July 20	20,434,000	52,607,000	60,295,000	18,728,000	152,064,000	134,486,000
Prod. 7-20 to 7-27	7,947,000 + 2.7	7,657,000 — 11.1	13,725,000 — 7.3	7,796,000 — 8.4	37,125,000 — 6.4	37,223,000
Ship. 7-20 to 7-27	7,520,000 + 5.9	8,089,000 + 5.3	12,227,000 + 46.3	8,318,000 — 3.9	36,154,000 +13.7	33,861,000
Stocks, July 27	20,861,000 + 2.1	52,175,000 — 0.8	61,793,000 + 2.5	18,206,000 — 2.8	153,045,000 + 0.6	137,848,000
Ratio Sales to Prod	94.6%	105.6%	89.1%	106.7%	97.4%	91.0%

Gasoline Produced by Various Methods, Week Ended July 27

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	7,293,000	72.0	11,962,000	65.5	8,104,000	78.9	2,407,000	45.7	29,766,000	67.8
Cracked	2,082,000	20.6	4,852,000	26.6	1,824,000	17.8	2,379,000	45.2	11,137,000	25.3
Natural	755,000	7.4	1,451,000	7.9	342,000	3.3	477,000	9.1	3,025,000	6.9
Totals	10,130,000		18,265,000		10,270,000		5,263,000		43,928,000	

+ or — columns are % change from previous week.

Mid-Continent Gasoline Stocks Only 8 Days' Supply

Staff Special—By Telegraph
TULSA, July 31

STOCKS of gasoline at 80 refineries in the Mid-Continent were reduced 4,895,000 gallons in the week ended July 27 when record breaking demand continued for motor fuels from both export buyers and domestic consumers. Total reserves at the 80 plants July 27 were 57,739,000 gallons. At the rate of shipments maintained in recent weeks stocks now represent only a little more than eight days' supply.

A year ago stocks of gasoline at the same group of plants totaled 70,505,000 gallons or 12 days' supply at the rate of consumption prevailing at that time. In 1927 the gasoline stocks of reporting companies did not fall to the current level until the middle of September, a month

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended July 27. Change in stocks figures from June 29.

GASOLINE

	Gallons
Production	173,910,000
Shipments	191,711,000
Net change in stocks	—17,801,000
Ratio sales to production	110.2%

KEROSENE

Production	26,445,000
Shipments	26,918,000
Net change in stocks	—473,000
Ratio sales to production	101.8%

STOVE DISTILLATE

Production	3,310,000
Shipments	2,760,000
Net change in stocks	+550,000
Ratio sales to production	83.4%

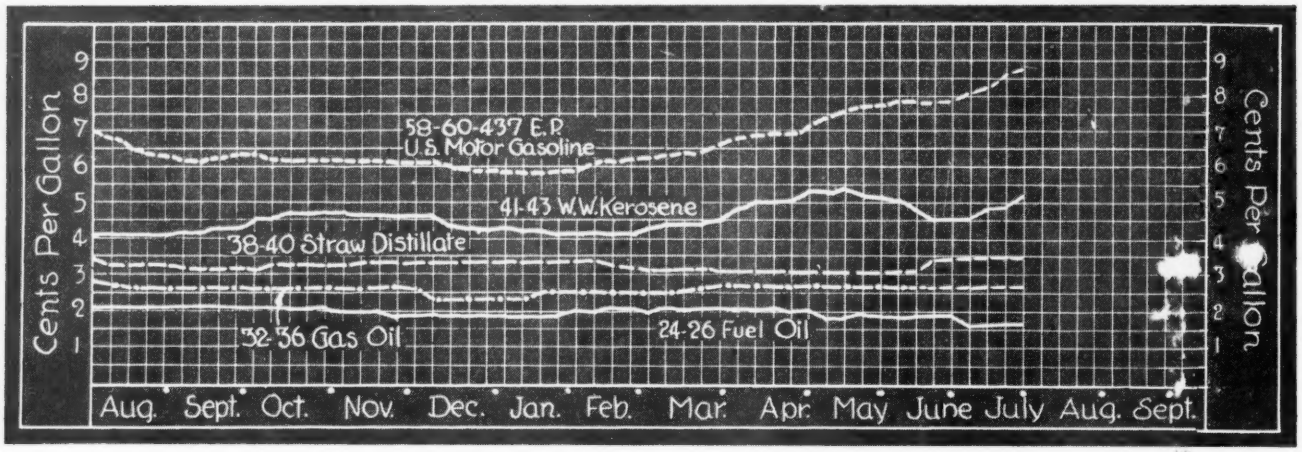
GAS OIL

Production	30,186,000
Shipments	31,085,000
Net change in stocks	—899,000
Ratio sales to production	103.0%

FUEL OIL

Production	155,333,000
Shipments	140,146,000
Net change in stocks	+15,187,000
Ratio sales to production	90.2%

Current Prices of Principal Mid-Continent Refined Products



Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this Issue

and a half later than they fell this year.

Two years ago gasoline stocks at virtually the same plants were down to 49,478,000 gallons on July 30. This was when Mid-Continent gasoline markets were at their peak for the year with U. S. Motor gasoline selling at about 13 cents a gallon. In 1926 gasoline stocks fell to a low of 40,706,000 gallons in the third week of September as compared with a low in 1927 of 54,778,000 gallons.

In the next two months it is probable that gasoline stocks will not be reduced much more than 10,000,000 gallons, about twice as large a reduction as was made in the last seven days. Refiners require a working stock of gasoline to do business which fact forbids the reduction of stocks much below a week's normal supply.

In the last week shipments of gasoline totaled 48,823,000 gallons, the third largest volume of shipments in any week this year. The preceding week shipments were at a new peak in the history of the field, 50,805,000 gallons.

Kerosene demand increased to 7,052,000 gallons. Production was 6,760,000 gallons, causing a draft on stocks of 700,000 gallons. Stocks July 27 totaled 14,234,000 gallons.

Stove distillate production was only a little above the light summer demand. Stocks were increased only 82,000 gallons to 5,330,000 gallons.

Shipments of fuel oil increased 4,350,000 gallons or 13.7 per cent to 36,154,000 gallons. Production of fuel oil fell 2 550,000 gallons to 37,-125,000 gallons. Stocks were 153,-035,000 gallons an increase of only 1,000,000 gallons. In the week ended July 20 fuel oil stocks increased 8,000,000 gallons and in the last four weeks 15,187,000 gallons.

Oklahoma and North Louisiana and Arkansas refiners drew on their stocks of fuel oil and Kansas refiners reported a stock increase of only 400,-000 gallons. The bulk of the increase was in Texas.

Gas oil stocks increased 2,300,000 gallons to 55,121,000 gallons when shipments fell 14.2 per cent while production was being increased.

With the exception of north Louisiana and Arkansas every group reduced its crude charges to stills. For the 80 plants the reduction was 14,-656 barrels daily average, bringing runs down to 338,134 barrels a day.

Shipping Board Opens More Bids on Bunker Oil

WASHINGTON, July 30.—Bids for supplying bunker oil requirements of the Shipping Board's Merchant Fleet Corp., for the three-year period beginning next January were opened today for the supplying of about 100,-000 barrels per month at Charleston, Savannah, Jacksonville and Tampa, 25,000 barrels at the two first mentioned and 15,000 at the other two.

Bidders were Gulf Refining Co., Mexican Petroleum Corp., The Texas Co., Pure Oil Co., Gulf States Terminal & Transport Co. The Gulf bid 93 cents for deliveries at the ports mentioned, barge delivery. Mexican Petroleum bid to supply 22,000 barrels at Boston, Mass., at $1.40; $1.25 on 17,500 barrels at Jacksonville and $1.20 on a like amount at Tampa. The Texas Co., bid to furnish the full amount at Charleston, Jacksonville and Tampa for one year at $1 per barrel. Pure Oil bid to furnish full amount at Savannah for one year at 89.75 cents per barrel. Gulf States bid to furnish full amount at Savannah at 94.75 cents.

Cities Service put in a bid for 25,000 per month at Boston at 5 cents over Standard of New Jersey, New York harbor, price at a maximum of $1.05 in 1929 and $1.30 with no maximum.

Oil Trademarks for Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"HARTOL" No. 264.303. Hartol Products Corp., New York, N. Y. For lubricating, motor fuel, and furnace oils, illuminating oils, gasoline, and lubricating greases.

"PRESTO" No. 264.871. Champlin Refining Co., Enid, Okla. For gasoline.

"COALINOIL" No. 254.119. American Coalinoil Corp., New York, N. Y. For fuel oil.

"LOCKEDOIL" and rep. of a padlock. No. 264,044. Penn State Oil Co., Inc., Philadelphia, Pa. For illuminating oils, motor fuel oils, furnace oils, lubricating oils, and lubricating greases.

Tanker Rates

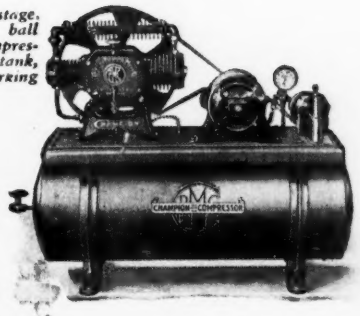
NEW YORK, July 30.—Approximate tanker freight rates in the following trades are, to Continental ports, in shillings per ton of 2240 pounds, British Sterling; to American ports, cents per barrels:

	Crude &/or Fuel	Refined Oil
Calif. to U.K. or Continental ports*	25/6	26/-
Gulf to U.K. or Continental ports*	15/	15/6
North Atlantic to U.K. or Continental ports*	12/	13/6
Calif. to North Atlantic ports (not E. of N. Y.)	50c	73c
**Gulf of North Atlantic ports (not E. of N. Y.)	17.5c	25c

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

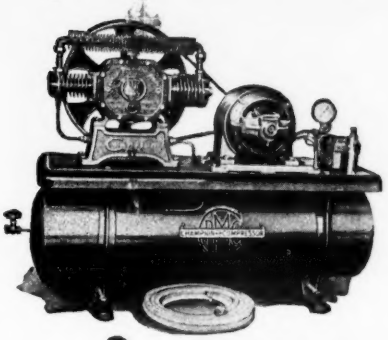
**For Venezuela loading 1c per bbl. additional. For Tampico loading, 4c per bbl. additional.

A-70, two stage, automatic, ball bearing compressor. 32 gal. tank, 200# working pressure. 1/2 H. P.

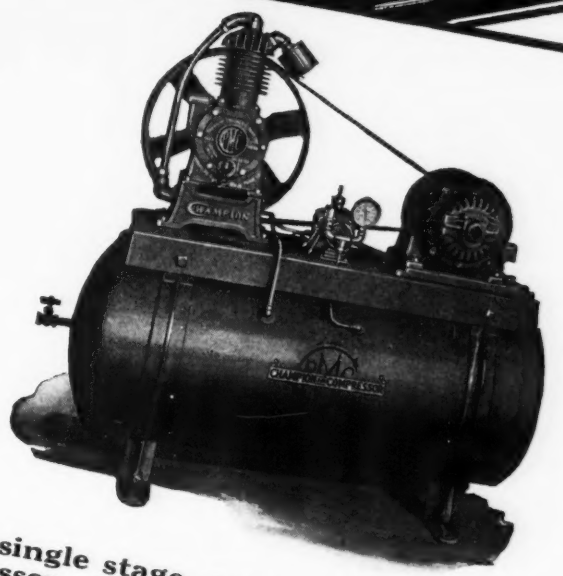


CHAMPION

Automatic Air Compressors



N-13, two stage, automatic, ball bearing compressor. 32 gal. tank, 200# working pressure. 3/4 H. P.



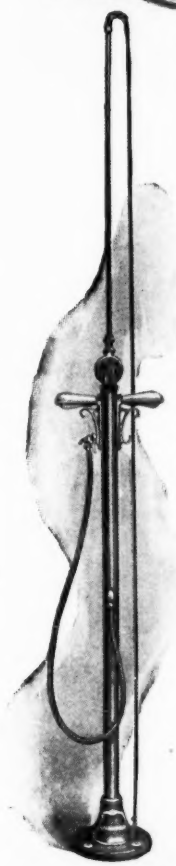
SE-26, single stage, automatic, ball bearing compressor. 60 gal. tank, 150 lbs. working pressure, 1½ H.P.

Built for continuous service and ideally well fitted for use in garages, service stations, paint shops, greasing stations, etc., where a limited amount of air is required but where its use is almost continuous. Extra quiet, low operating and upkeep cost.

Equipment includes: compressor with fan fly-wheel, clear vision oil gauge, check valve, safety valve, air gauge, automatic electric controller, automatic pressure unloader, belt, motor with adjustable sliding motor rail, to permit easy belt adjustment; all mounted on steel base; tank, needle valve and 25′ air hose and chuck with fittings all complete — nothing else to buy—ready to run when wired to electric current.

Champion has such features as sturdy design, long life, no delicate parts, fool proof, quiet operation, low operating cost. All of these coupled with unusually attractive first cost is the reason why thousands of stations are Champion equipped. Write for catalog.

Champion also builds
Car Washers and Paint Spray Units



Service Towers—4 styles — efficient, sturdy, fool proof—will outlast the ordinary tower many times. Sold at a price that will interest you.

CHAMPION

PNEUMATIC MACHINERY COMPANY

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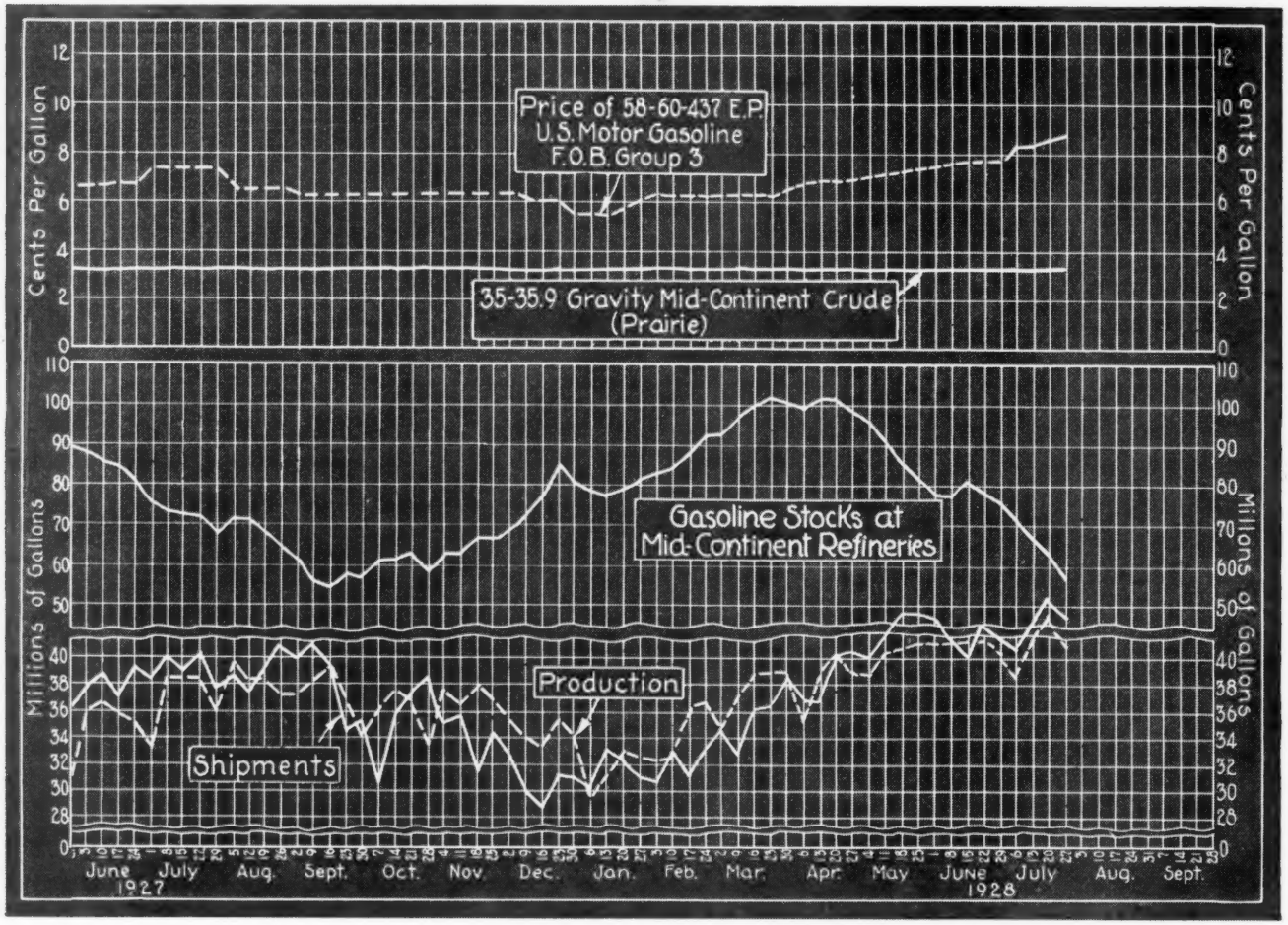
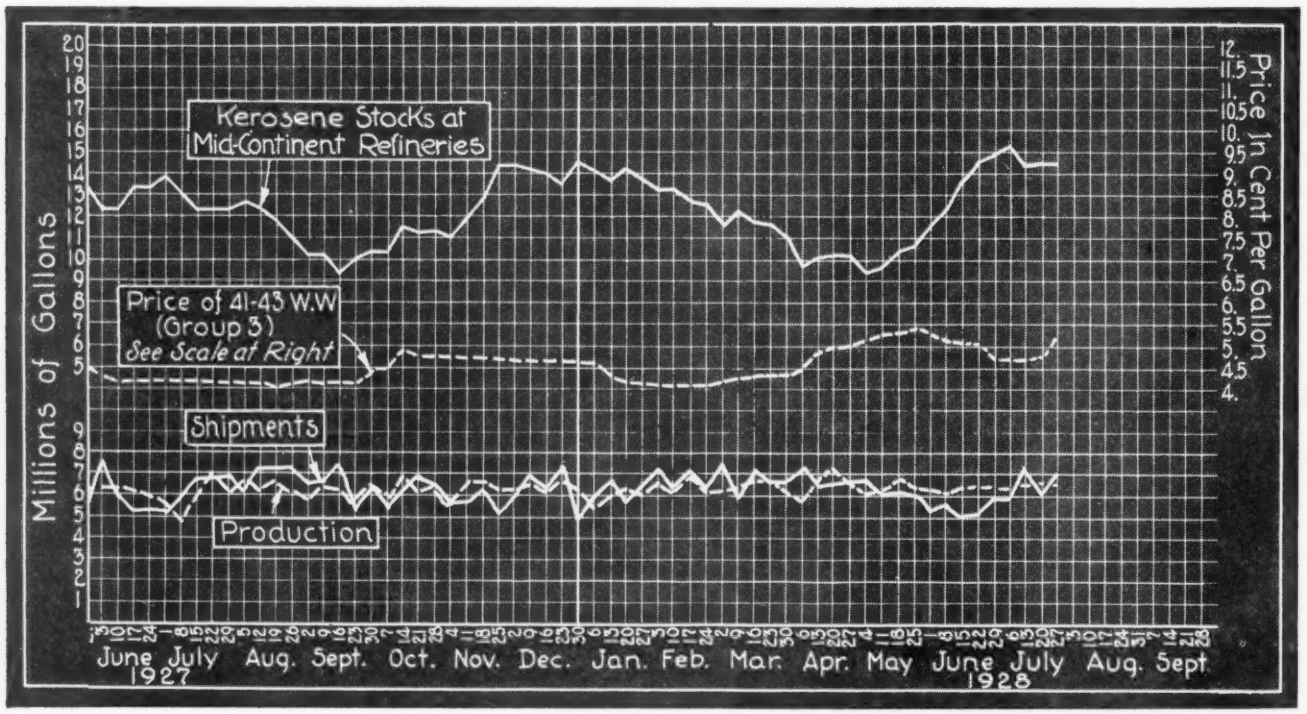
Barometer of Mid-Continent Refinery Market—Week Ending July 27

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 80 Plants to National Petroleum News


Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Production
Shipments
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date shown in table on opposite page


Kerosene Stocks at Mid-Continent Refineries
Price of 41-43 W.W (Group 3) See Scale at Right
Millions of Gallons
Price In Cent Per Gallon
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

Curb Pumps Ordered Off Chicago Streets

CHICAGO, July 29.—The city council of Chicago this week ordered all curb pumps removed from city property. The action is not a result of new legislation but merely renewed vigilance with regard to a law that is several years old. It has been unlawful to sell gasoline from curb pumps for about six years.

Strict enforcement of the law will not cause a ripple in the retail gasoline market in Chicago. There are not many curb pumps in the city. The public will hardly miss the service they gave. To the operators of curb pumps they were mostly sidelines for a garage or similar establishment. In small garages where gasoline is a necessity they can be replaced by tanks on wheels inside the building.

Agitation to have the curb pump ordinance enforced was carried on by the Automobile Associated Trades of Illinois, a local organization of private service station owners. Their main objection to curb pumps was that a number of them sold gasoline at reduced prices without hope of returning a profit but with the hope of attracting trade to the garage.

As far as the oil companies who own pumps are concerned, they will offer little if any objection to the new ruling. They are glad enough to be relieved of the expense of maintaining pumps and tanks for customers who do not handle enough business to justify the service.

Taxmans Open a Refinery At Wichita Falls

CHICAGO, July 28.—Taxman Refining Co., of which J. J. and M. Taxman of Kansas City are the sole owners, will begin operating a 2500-barrel refinery near Wichita Falls, Tex., on Aug. 1, according to information given out by Phil Taxman of Atlas Petroleum Co., Chicago. Phil Taxman is a son of J. J. Taxman who is interested also in Atlas Petroleum Co.

The Taxmans recently purchased the old Miller Refining Co. plant near Wichita Falls and started remodeling it. It has been idle for several months. Contracts for north Texas crude have been made. Maynard Taxman, another son of J. J. Taxman, will take up his residence in Wichita Falls. H. G. Smart, formerly plant superintendent under the Miller ownership will continue in the same capacity.

Atlas Petroleum Co., Chicago, will market the output of the Wichita Falls refinery.

Many filling station operators pay for their BuckeyeSpecials by hauling for their own needs, and for other filling stations.

400 Gallon Size

A BUCKEYE SPECIAL ON A "AA" MODEL FORD

If you operate a Ford, Chevrolet, Dodge, or any other small truck, you are bound to be interested in the construction and price of the BUCKEYE SPECIAL.

Buckeye Specials are built substantially like the larger Buckeye jobs—come in sizes suitable for 1 and 1½ ton trucks—and are priced to interest you.

350 Gallons Only $180 — 400 Gallons Only $195 — 500 Gallons Only $230

All prices f. o. b. Dayton

Also light and heavy gauge underground gasoline storage tanks from 65 to 3000 gallons capacity.

Write for illustrated literature on both the Buckeye Special line, and on the regular line of Buckeye tanks for larger trucks.

Representatives wanted for preferred territory

The Buckeye Boiler Company
1616 McLain St., - Dayton, Ohio

BUCKEYE Quality Tanks

INCREASE YOUR ALE

Color your anti-knock or high test gasoline an attractive shade by which the public will recognize and remember your good product.

DYKEM GASOLINE COLORS

Made especially for gasoline; simple, safe, economical

BLUE GREEN PURPLE RED ORANGE

Write for price and sample of shade you prefer.

DYESTUFFS & CHEMICALS, INCORPORATED
11th & Monroe Sts. St. Louis, Mo.

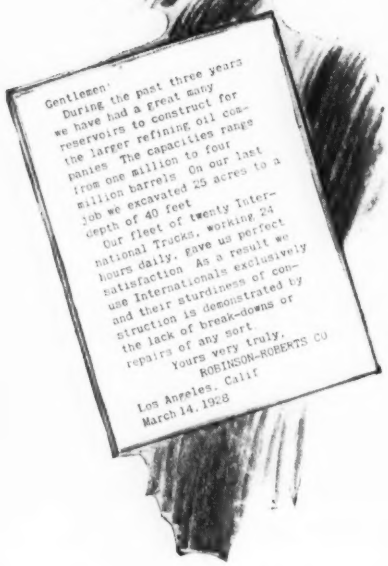
An Ocean of Oil

Big enough and deep enough to float six of Uncle Sam's biggest battle-ships, here is the world's largest oil reservoir.

At Lomita, California, Robinson-Roberts Co. built this reservoir for the Pan American Oil Co. They excavated twenty-five acres to a depth of forty feet in just forty days. And their fleet of twenty International Trucks was always on the job — no breakdowns, no repairs. Forty days and forty nights — twenty-four hours a day, without a hitch.

A remarkable test of endurance and dependability! But no more than had been expected. For Internationals were chosen by elimination tryouts on previous jobs. Mules were used at first, but these were slow and expensive. Trucks, one make after another, replaced the mules, and then Internationals replaced all other trucks. Robinson-Roberts now use Internationals exclusively.

Put International Trucks to work for you — at stiffer jobs than this if you can find any. The result will be the same — unequaled performance, low-cost hauling, minimum maintenance. There is an International branch or dealer near you.



Gentlemen:
During the past three years we have had a great many reservoirs to construct for the larger refining oil companies. The capacities range from one million to four million barrels. On our last job we excavated 25 acres to a depth of 40 feet.
Our fleet of twenty International Trucks, working 24 hours daily, gave us perfect satisfaction. As a result we use Internationals exclusively and their sturdiness of construction is demonstrated by the lack of break-downs or repairs of any sort.
Yours very truly,
ROBINSON-ROBERTS CO
Los Angeles, Calif
March 14, 1928

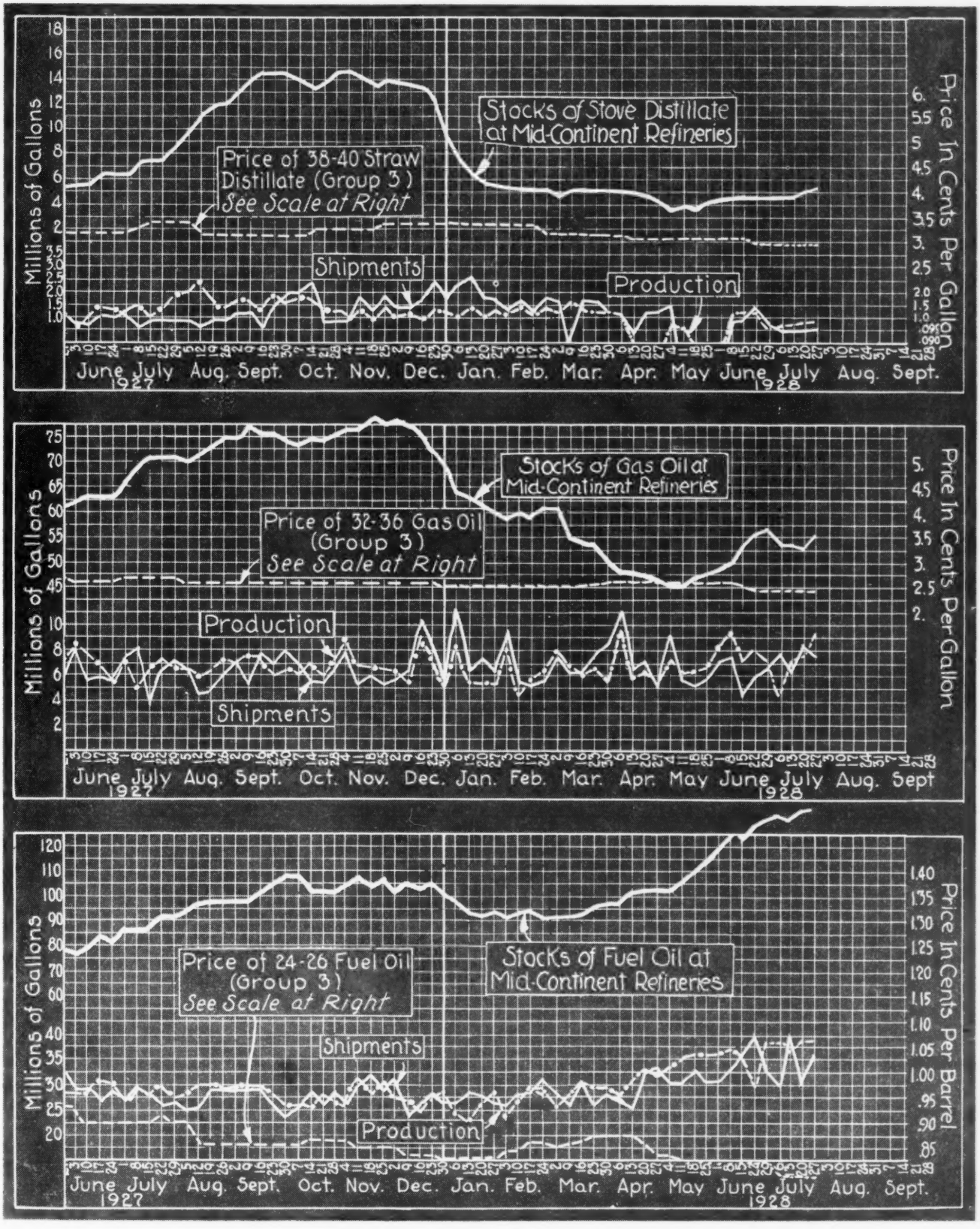
The International line includes the Special Delivery for loads up to ¾-ton; 4 and 6-cylinder Speed Trucks of 1¼, 1½ and 2-ton sizes; Heavy-Duty Trucks ranging from 2½-ton to 5-ton sizes; Motor Coaches, and McCormick-Deering Industrial Tractors. Sold and Serviced by 160 Company-owned Branches in the United States and Canada and dealers everywhere.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
606 So. Michigan Ave. (incorporated) Chicago, Ill.

INTERNATIONAL
HARVESTER
TRUCKS
COMPANY

Barometer of Mid-Continent Refinery Market—Week Ending July 27

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 80 Plants to National Petroleum News


Millions of Gallons
Price In Cents Per Gallon
Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928
Millions of Gallons
Price In Cents Per Gallon
Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept
1927
1928
Millions of Gallons
Price In Cents Per Barrel
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Stocks of Fuel Oil at Mid-Continent Refineries
Shipments
Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1927
1928

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SINCLAIR OPALINE MOTOR OIL

REG. U. S. PAT. OFF

Seals Power at every Degree of Wear

When you become an Authorized OPALINE Dealer!

REG. U.S. PAT. OFF.

. . . you have the exclusive Opaline method of applying motor oil.

. . . you ask a motorist, when he drives in, "What's your mileage?" Then you consult the Sinclair Recommendation Index and you give him the correct grade of Opaline he needs—whether his car is new, whether it has travelled 2,000 miles, 12,000 miles, or over!

. . . that grade of Opaline will fit the degree of *wear* in his engine. It will seal the pistons and prevent power from blowing by!

. . . that's the *extra* service Opaline gives a motorist — the *extra* service *YOU* give him. And he'll come back for more!

. . . the right *grade* of motor oil is just as important as the right *quality*. The Authorized Opaline Dealer gives a motorist *both*. May we tell you the added advantage of selling such a favorably known, nationally advertised brand?

SINCLAIR REFINING COMPANY, INC.

Also Makers of Sinclair Gasoline and H-C Gasoline

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Atlanta Boston Chicago Houston Kansas City

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Refinery - Tank Wagon Markets

National Petroleum News

Only Light Oil Prices Rise Because Of Mid-Continent Crude Advance

Staff Special
TULSA, July 28

GASOLINE prices advanced 0.25 to 0.50 cent a gallon and kerosene prices moved up 0.25 cent a gallon in the Mid-Continent refinery market the last week in July as an aftermath of an unexpected advance in prices for light crude oils July 26.

The market was active all week, with the exception of July 26 and 27, following the announcement of the crude advance. The market naturally was unsettled those two days while refiners and buyers were getting their bearings, but by the close of business July 28 the market was back on an even keel.

Exporters withdrew from the market after the crude advance, but earlier in the week had bought a quantity of high gravity gasoline in north Texas at 10 cents a gallon, and a small lot of 41-43 kerosene at 4.625 cents a gallon.

Natural gasolines continued their price advances the first three days of the week, but toward the end of the week buying was slower and prices became steady.

Kerosene demand was good from all sources and prior to July 26 refiners were obtaining 5 cents a gallon for 41-43 w.w. grade. This price was advanced to 5.25 cents after the change in crude prices.

Distillates and gas oil generally were unchanged.

Fuel oil prices were unaffected by the crude advance, refiners apparently deeming it more advisable to obtain their added production costs from the gasolines and kerosenes.

Neutral oils and cylinder stocks also were unchanged. Wax was quiet at unchanged prices.

Gasolines

Action by the Carter Oil Co. and the Humble Oil & Refining Co. July 26 in advancing the prices for light crude oils in the Mid-Continent and reducing prices for heavy oils, caught the refining industry wholly unprepared. The result was a completely unsettled gasoline market for 24 to 36 hours, but by July 28 the activity which had prevailed before the crude changes was again holding sway.

Several refiners upon being advised of the crude change immediately withdrew all quotations. Many of them, however, already had out offers which were firm for two or three days and jobbers in some instances were quick to take advantage of the opportunity to buy at a figure which they knew was considerably lower than the new quotations would be.

Demand for all grades of refined gasolines was good early in the week. Refiners reported orders were coming in as fast or faster than they could be filled. Two or three refiners had been compelled to limit their division offices to a certain number of cars a day.

Two or three refiners advanced prices for 58-60 U. S. Motor to 8.75 cents as early as July 24. Others continued to accept business at 8.50 cents. When the crude change was announced, and the refiners had had an opportunity to determine what their increased production costs would be, new quotations were sent out at 9 to 9.25 cents, with other grades advanced 0.25 to 0.50 cent a gallon.

Exporters sought high gravity gasolines in the Mid-Continent with a few small purchases of 64-66, 375 e. p. gasoline in north Texas at 10 cents a gallon. The Roxana Petroleum Co. inquired throughout the field for a quantity of this grade for domestic shipment to Canada, but as far as could be learned was unable to obtain the gasoline in the Mid-Continent. It was reported here July 28 that an Ohio company had accepted the business. The buyer had offered up to 10.125 cents a gallon for goods available for prompt shipment. North Texas refiners report they will be kept busy the next three weeks or more filling export orders already on their books, and were unable to accept any of the business.

Two or three large refiners meanwhile continued to buy gasolines from other refiners to apply on their own orders or to be shipped to their own distributing systems. These refiners were quoting from 0.25 to 0.50 cents above the prevailing market and let it be known generally that they had no gasoline to sell at the present time.

Natural Gasolines

Prices of all grades of natural gasolines advanced 0.25 to 0.375 cent a gallon. Most of the advance was made early in the week as buyers made a final effort to obtain goods to apply on their July orders.

By the middle of the week two large buyers announced they had obtained their requirements for the month, and they withdrew from the market. Prices for the remainder of the week remained steady.

Several refiners have declared they will not use as much naturals in August as they did in July. With prices above U. S. Motor gasoline in Oklahoma they say they lose money on every gallon of natural gasoline they put in their refined product.

It is definitely known, however, that at least two large manufacturers have considerable buying power for August. They already have contracts on their books which call for larger quantities of gasoline than they are manufacturing at present, and it will be to these buyers as well as exporters and Gulf Coast refiners that the natural gasoline manufacturers will look for the bulk of their business for the next 30 days.

Kerosenes

Kerosenes were the only refined products other than gasolines which felt the crude advance. Two refiners who have little kerosene in storage, announced they had advanced their prices to 5.50 cents, primarily to indicate they were out of the market.

Demand for kerosenes in all areas has been fair both before and after

the crude advance. Domestic business from the Middle West has held up well, a majority of refiners said. A quantity of 41-43 gravity kerosene was bought for export early in the week in north Texas but the total gallonage was not revealed. Price paid was said to be 4.625 cents a gallon.

At least one export company, meanwhile, continued to seek 44 gravity kerosene but without obtaining any sizable quantities.

Distillates and Gas Oil

Kansas refiners have begun to feel the fall demand for distillates. Many of their customers are buying some goods for storing, while others are negotiating for contracts. With Kansas City one of the largest centers of distillate consumption it is not unusual for the Kansas refiners to be the first to feel this buying.

Refiners in other areas report their distillate business has shown no change in the past few weeks.

Gas oil buying has been more active. Refiners having cracking units sought straight reduced gas oil for cracking purposes, while industrials also were actively inquiring for goods for both prompt and over the month delivery. Prices up to the close of business July 28 had shown no changes, despite the crude advance.

Fuel Oils

Fuel oils have become too plentiful in the Mid-Continent the last several weeks for crude advances to have any effect on the price structure other than possibly to prevent further declines.

Prices of all grades of fuel oil were generally unchanged. Refiners reported both spot and deferred shipment buying was fair but with the crude charges to stills maintaining a high daily average, production of fuel continued to keep far ahead of shipments despite efforts of several refiners to burn more fuel under their own stills and boilers.

Refiners that make higher gravity fuels, said they had noticed a slight increase in demand for those oils, and there have been a number of inquiries recently for contracts for zero cold test fuels for this winter.

Neutral Oils, Cylinder Stocks, Wax

Refiners to date have made no change in their quotations for neutral oils, or cylinder stocks as a result of the crude advance. Several indicated July 28 that they probably would make some revisions at an early date, but prices for the week remained generally unchanged.

Several refiners recently advanced their quotations for 150-160 vis. at 210 bright stock to 25 cents a gallon. Other refiners continued to hold their quotations at 22 to 24 cents a gallon. No sales were reported this week at under 22 cents.

Wax was in only fair demand but since most refiners already have the bulk of their production sold for the month, prices showed no changes.

Eastern Kentucky Refinery Market

ASHLAND, July 30.—All gasolines in eastern Kentucky refining district have advanced from 0.375 to 0.50 cent over past week. Fuel oil is down 0.125 cent. Kerosene and gas oil prices are unchanged. July 30 prices, f.o.b. eastern Kentucky refinery, are:

58-60 U. S. Motor gasoline	11.25
60-62 gasoline	11.75
64-66 gasoline	12.00
68-70 gasoline	12.50
41-43 kerosene	6.75
32-36 gas oil	4.25
24-26 fuel oil	2.75

Fayette B. Dow's Father Dies

TULSA, July 28.—Dr. Frank B. Dow of Rochester, N. Y., died at his home on July 14 at the age of 78, according to word received here this week.

Dr. Dow was the father of Fayette B. Dow of Washington, D. C., who is known throughout the oil industry as a result of his work as Washington counsel for oil associations.

Dr. Dow was well known as a physician in his home city and took a great interest in civic affairs, particularly in the school system.

He was born on April 16, 1851, and celebrated his golden wedding in 1927. He is survived by his wife, a brother and sister and two sons.

GULF Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York Boston Philadelphia Louisville
Houston New Orleans Atlanta Tampa

REFINERS OF OKLAHOMA, TEXAS AND LOUISIANA

PETROLEUM

Refined Oil Naphtha Paraffine Wax
Gasoline Gas Oils Petroleum Coke

FUEL OILS LUBRICATING OILS

Cylinder Engine Cordage

RED AND PALE PARAFFINE OILS

FARRELL Truck Tanks

for the NEW FORD

— an entirely new design — built for a specific purpose — ***not a revamped or converted tank.***

Low overall height—low center of gravity —less side sway—highly attractive and complete in every detail.

Welded "flexible-unit" oval tanks—steel "cushioned" underframe—strong bumper and safety bar—roomy, steel bucket box —safety controls and vents. Mounting assure a rigidity which means extra long life.

NEW LOW PRICES

Greatest strength is combined with lightweight—***you don't sacrifice gallonage for bulky, excessive, weighty construction.***

Write for specifications and new LOW prices — you'll be greatly surprised to learn how much more FARRELL builds into their tanks. Yes-sir-e-e prompt shipment—painted, mounted, "in the prime" or unmounted as desired.

FARRELL MANUFACTURING COMPANY

(Works—Joliet, Illinois)

CHICAGO—1213 W. Washington Blvd.

Detroit—5459 Grand River Ave. **Cleveland—4336 Broadway**

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices July 30	Prices July 23	Prices July 16
52-54 Naphtha	10.25 –10.75	10.00 –10.25	10.00 –10.25
54-56 Naphtha	10.25 –10.75	10.00 –10.375	10.00 –10.375
58-60 U.S. Motor 437 e.p.	10.75 –11.25	10.50 –11.00	10.50 –11.00
60-62 400-410 e.p. gasoline	11.00 –12.00	11.00 –11.25	11.00 –11.50
64-66 390 e.p. gasoline	11.75 –12.00	11.50 –11.75	11.50 –11.75
68-70 Str.-run gas. 350-360 e.p.	12.00 –13.00	11.75 –12.50	11.75 –12.50
‡OHIO			
58-60 U.S. Motor, delivered in Ohio, tax to be added	12.00	11.75	11.50
‡Quotation of S. O. Ohio.			
OKLAHOMA			
48-50 450 e.p. naphtha	†8.25 – 8.50	†8.00	†7.75
50-52 450 e.p. naphtha	†8.25 – 8.50	†8.00	†7.75
56-58 450 e.p. gasoline	8.375– 8.625	8.125– 8.375	7.875– 8.125
58-60 450 e.p. gasoline	8.625	8.25 – 8.50	8.00 – 8.25
64-66 390 e.p. gasoline	9.75 – 9.875	9.00 – 9.125	8.50 – 8.625
68-70 350-360 e.p. gasoline	10.25 –10.50	9.25 – 9.75	8.875
OKLAHOMA (Weighted Average Prices)			
58-60 U.S. Motor, 437 e.p.	9.0250	8.6191	8.3916
60-62 437 e.p. gasoline	9.1250	8.7250	8.4018
60-62 400 e.p. gasoline	9.5000	8.9750	8.6563
64-66 375 e.p. gasoline	9.9375	9.1667	8.7500
KANSAS (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	9.25	8.625– 8.75	8.375– 8.50
60-62 400 e.p. gasoline	9.75	9.00 – 9.25	8.75
64-66 375 e.p. gasoline	10.25	9.25 – 9.50	9.00
NORTH TEXAS			
48-52 450 e.p. naphtha	†8.00	†7.50 – 7.75	†7.375
56-58 450 e.p. gasoline	†8.50	†7.75 – 8.00	†7.50 – 7.625
58-60 450 e.p. gasoline	†8.50 – 8.75	†8.00 – 8.25	†7.75
58-60 U.S. Motor 437 e.p.	9.25	8.625	8.00 – 8.125
60-62 400 e.p. gasoline	9.50	9.00	8.50
64-66 390 e.p. gasoline	9.75	9.25 – 9.50	8.75
64-66 375 e.p. gasoline	10.25 –10.375	9.75	9.00
68-70 350-360 e.p. gasoline	10.50 –10.75	9.50	9.00 – 9.25
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	9.50	9.25	9.00
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	8.50	8.25 – 8.50	8.25
58-60 450 e.p. gasoline	8.75	8.50 – 8.75	8.50
58-60 U.S. Motor 437 e.p.	9.375– 9.50	9.25	9.00
‡CALIFORNIA			
54-58 U.S. Motor 437 e.p.	9.00 –12.50	9.00 –12.00	9.00 –12.00
58-61 U.S. Motor 437 e.p.	9.50 –13.50	9.50 –13.00	9.50 –13.00
42-45 Eng. dis. 445-480 e.p.	7.00 – 8.00	.....	6.50 – 7.00

‡3c tax to be added to California gasoline prices if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	9.75	‡9.50	**8.50
Grade A, 72-79.9, 90% Recovery	9.75	‡9.50	**8.50
Grade BB, 84-92, 85% Recovery	9.75	‡9.50	**8.50
Grade B, 76-83.9, 85% Recovery	9.75	‡9.50	**8.50
Grade C, 80-92, 78% Recovery	9.75	‡9.50	**8.50
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	9.75	‡9.50	**8.50
Grade A, 72-79.9, 90% Recovery	9.75	‡9.50	**8.50
Grade BB, 84-92, 85% Recovery	9.75	‡9.50	**8.50
Grade B, 76-83.9, 85% Recovery	9.75	‡9.50	**8.50
Grade C, 80-92 78% Recovery	9.75	‡9.50	**8.50

‡All grades naturals represent quotations and offers to buy.

NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†10.00 –10.25	†10.00	†8.50 – 8.75
Grade BB	†10.00 –10.25	†10.00	†8.50 – 8.75
Grade C	†10.00 –10.25	†10.00	†8.50 – 8.75
CALIFORNIA			
75-85, 375-390 e.p. blend	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00

MOTOR FUEL BLENDS

OKLAHOMA			
64-66 Blend 437 e.p.	†8.75	†8.50	†8.00 – 8.125

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	6.00 – 6.625	6.00 – 6.50	6.00 – 6.50
46 w.w. kerosene	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
47 w.w. kerosene	6.75 – 7.25	6.75 – 7.25	6.875– 7.25
300 mineral seal	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
OKLAHOMA			
41-43 w.w. kerosene	5.25 – 5.50	4.75 – 5.00	4.75
42-44 w.w. kerosene	5.75 – 5.875	5.25 – 5.50	5.00
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	5.50 – 5.625	5.25	5.00 – 5.25
42-44 w.w. kerosene	5.75 – 6.00	5.50	5.25 – 5.50
NORTH TEXAS			
40-42 w.w. kerosene	4.75	4.375– 4.50	4.375
41-43 w.w. kerosene	5.00	4.625– 4.75	4.50 – 4.625
NORTH LOUISIANA (N. La. Ark. and Miss. destination)			
41-43 w.w. kerosene	5.50	5.25	5.25
ARKANSAS (Arkansas destination only)			
42-44 kerosene	5.50 – 5.75	5.25	5.25
CALIFORNIA			
38-40 w.w. kerosene	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00

NEUTRAL OIL

PENNSYLVANIA Vis.		(Viscosity at 70°F.)	
200 No. 3 Assoc. Filt.	31.50 –33.00	32.50 –33.00	32.50 –33.50
180 No. 3 Assoc. Filt.	30.00 –31.00	30.50 –31.00	30.50 –31.75
150 No. 3 Assoc. Filt.	26.00 –27.00	26.50 –27.50	27.00 –28.00
	(Non Viscous)		
34 Grav. 330-340 Flash	7.50 – 9.00	7.50 – 9.00	7.50 – 9.00
36 Min. Neut. 300-305 Flash	7.75 – 8.00	7.75 – 8.00	6.00 – 8.50
OKLAHOMA Vis. Color	(Viscosity at 100°F.)		
100—No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150—No. 3	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
150—No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180—No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200—No. 3	9.625–11.00	9.625–11.00	9.625–11.00
200—No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200—No. 5	8.50 –10.00	8.50 –10.00	8.50 –10.00
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.50 –14.00	13.50 –14.00	13.50 –14.00
240—No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240—No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280—No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280—No. 4	15.25	15.25	15.25
280—No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300—No. 5-6	17.00	17.00	17.00
GULF COASTAL Vis. Color	(Viscosity at 100°F., pour test 0)		
100—No. 2 Unfilt. Pale	7.00 – 7.50	7.00 – 7.50	6.75 – 7.25
200—No. 3 Unfilt. Pale	10.25 –10.75	10.25 –10.75	10.00 –10.50
300—No. 3 Unfilt. Pale	11.25 –11.75	11.25 –11.75	11.00 –11.50
500—No. 3½ Unfilt. Pale	13.25 –13.75	13.25 –13.75	13.00 –13.50
750—No. 4 Unfilt. Pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200—No. 5½ Red Oil	8.25 – 8.75	8.25 – 8.75	8.00 – 8.50
300—No. 5½ Red Oil	9.25 – 9.75	9.25 – 9.75	9.00 – 9.50
500—No. 6 Red Oil	10.75 –11.25	10.75 –11.25	10.50 –11.00
750—No. 6 Red Oil	13.50 –14.00	13.50 –14.00	13.50 –14.00
CALIFORNIA Vis. Color	(Viscosity at 100°F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450—No. 3	15.50 –16.00	15.50 –16.00	15.50 –16.00
550—No. 3	16.50 –17.00	16.50 –17.00	16.50 –17.00
600—No. 3	17.00 –17.50	17.00 –17.50	17.00 –17.50
200—No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300—No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400—No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500—No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600—No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700—No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

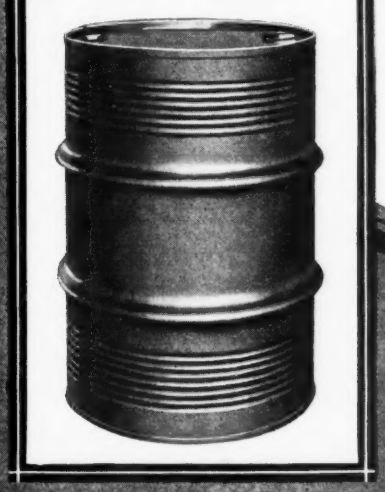
OKLAHOMA			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	22.00 –25.00	21.50 –24.00	21.50 –24.00
600 E St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	8.00 –10.00	8.00 –10.00	8.00 –10.00
600 St. Ref. Dark Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	12.25 –13.50	11.00 –13.50	12.25 –13.50
650 Steam Refined	14.50 –15.50	13.00 –15.50	14.50 –15.50
600 Flash	17.50 –18.50	17.50 –18.50	17.00 –18.00
625 Flash	26.00 –29.00	27.00 –29.00	26.50 –28.00
600 Warren E	18.50	17.50 –18.50	17.50 –18.50
600 Oil City E	16.00 –17.50	16.50 –17.50	16.50 –17.50
600 D Filtered	22.50 –24.50	22.50 –23.50	23.00 –24.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	36.00 –36.50	36.00	35.00 –36.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	34.00 –34.50	34.00	33.00 –34.00

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher)

†Prices nominal ††Only one refiner quoting *Quotations only **Represents both sales and quotations

SENSIBLE ECONOMY

FOR the shipment of liquids with a flash point above 80° F. and for many other commodities too, the use of P. I. W. Light Gauge Barrels is sensible economy. The heavier gauge of material necessary in the I. C. C. barrels is absent in the Light Gauge Barrels yet they fully comply with the requirements of Rule No. 40 of the Consolidated Freight Classification and have in fact a margin of safety far beyond that required. Higher hoops and deeper chimes insure easier handling and give added strength to the barrel. They are economical to buy and to use. Let our nearest sales office tell you more about this economical light gauge barrel.



Products:

P. I. W. Products Include

"Fluid Fusion" Welded Stills
"Fluid Fusion" Welded Steel Pipe
"Fluid Fusion" Welded Boxes, Bins and Kettles
Tanks up to 120,000 barrels capacity
"Pennsylvania" Tank Cars
Process Industry Equipment
Oil Refining Equipment
Elevated Steel Tanks
Penstocks
Standpipes
Annealing Boxes
Galvanizing Kettles
Smokestacks
Agitators
Blast Furnace Equipment
General Light and Heavy Steel Plate Construction
P. I. W. Steel Shipping Barrels
Coolers Retorts Kilns
Vulcanizers

Branch Plant
BEAUMONT, TEXAS

District Offices
NEW YORK CHICAGO
HOUSTON TULSA

The
PETROLEUM IRON WORKS COMPANY
SHARON, PA.

P.I.W.
STEEL BARRELS

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices July 30	Prices July 23	Prices July 16
Per pound, New York			
122-124 white crude scale	4.375- 4.75	4.375- 4.50	4.25 - 4.375
124-126 white crude scale	4.50 - 4.75	4.50	4.50
OKLAHOMA			
**124-126 White Crude Scale	4.00 - 4.25	4.00 - 4.25	4.00 - 4.25
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 - 6.50	6.00 - 6.50	6.00 - 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	4.75 - 5.125	4.625- 5.00	4.75 - 5.125
30-34 fuel oil	4.25 - 4.75	4.25 - 4.50	4.50 - 4.875
28-32 fuel oil	4.125- 4.50	4.125- 4.50	4.50 - 4.625
OKLAHOMA			
38-40 straw distillate	2.875- 3.00	2.875- 3.00	2.875- 3.00
36-38 straw distillate	2.75	2.75	2.75
32-36 gas oil, straw	2.375- 2.50	†2.50 - 2.75	†2.50 - 2.75
32-36 dark gas oil	†2.50 - 2.75	2.375- 2.50	2.375- 2.50
28-30 fuel oil (in bbls.)	$0.85 - 0.875	$0.85 - 0.875	$0.85 - 0.875
26-28 fuel oil (in bbls.)	$0.675- 0.725	$0.675- 0.725	$0.775- 0 80
24-26 fuel oil (in bbls.)	*$0.65- 0.675	**$0.65- 0.675	**$0.675-0.70
22-26 fuel oil (in bbls)	*$0.575- 0.625	**$0.575-0.625	**$0 575-0.625
18-22 fuel oil (in bbls.)	*$0.55 - 0.60	**$0.55- 0.60	**$0.55- 0.60
16-18 fuel oil (in bbls.)	*$0.55	**$0.55	**$0.55
14-16 fuel oil (in bbls.)	*$0.55	**$0.55	**$0.55
KANSAS (F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.25 - 3.50	3.25 - 3.50	3.25
36-38 straw distillate	3.00 - 3.125	3.00 - 3.125	3.00
32-36 gas oil	2.625- 2.75	2.625- 2.75	2.625- 2.75
24-26 fuel oil	*$0.65 - 0.75	*$0.65- 0.75	*$0.75
18-22 fuel oil	*$0.60 - 0.65	*$0.60- 0.65	*$0.675
NORTH TEXAS			
38-40 straw distillate	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00
32-36 gas oil, cracked	2.25 - 2.375	2.25 - 2.375	2.25 - 2.375
32-36 gas oil, uncracked	2.25 - 2.375	2.25 - 2.375	2.25 - 2.375
24-26 fuel oil (in bbls.)	$0.50 - 0.525	$0.50 - 0.525	$0.50 - 0.525

†Prices Nominal ††Only One Refiner Quoting *Quotations only

GULF COASTAL	Prices July 30	Prices July 23	Prices July 16
Fuel (in bbls.)	$1.20 -$1.25	$1.30 -$1.35	$1.30 -$1.35
Gas oil	4.25 - 4.375	4.25 - 4.375	4.25 - 4.375
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	2.625- 2.875	2.625- 2.875	2.625- 2.875
32-36 gas oil, straw	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00
16-20 fuel oil (in bbls.)	$0.65 - 0.70	$0.65 - 0.70	$0.65 -$0.70
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 - 3.25	3.00 - 3.25	3.00 - 3.25
32-36 gas oil	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00
28-32 gas oil	2.75	2.75	2.75
Road Oil	$1.15	$1.15	$1.15
CALIFORNIA (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.65 -$0.70	$0.65 -$0.75	$0.65 -$0.75
14-18 Bunker oil (in bbls.)	$0.80 -$1.00	$0.80 -$1.00	$0.80 -$1.00
30-34 gas oil (in bbls.)	$1.00 -$1.20	$1.00 -$1.20	$0 90 -$1.10
27 Plus Diesel oil (in bbls.)	$0.90 -$1.00	$0.90 -$1.00	$0.90 -$1.00

‡PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars ⅝c to ¾c per pound less.)

Snow White	8.25 - 8.50	8.25 - 8.50	8.125- 8.50
Lily White	7.25 - 7.50	7.25 - 7.50	7.125- 7.50
Cream White	6.25 - 6.50	6.25 - 6.50	6.125- 6.50
Light Amber	3.50	3.50	3.50 - 3.625
Amber	3.25	3.25	3.125- 3.25
Red	2.75 - 3.00	2.75 - 3.00	2.75 - 3.00

‡Only two refiners quoting petrolatums.

PETROLEUM COKE

****OKLAHOMA**

(Per ton in car lots)

Lump	$4.50 - 5.00	$4.50 - 5.00	$4.50 -$5.00
Still run	$2.75 - 3.00	$2.75 - 3.00	$2.75 -$3.00
Breeze	$1.75 - 2.00	$1.75 - 2.00	$1.75 -$2.00

**Represents Both Sales and Quotations

Pennsylvania Gasoline Moves Up ¼ Cent

CLEVELAND, July 30.—Gasoline prices advanced 0.25 cent in western Pennsylvania July 30. U. S. Motor was quoted at 10.75 to 11.25 cents. Naphthas also were up 0.25 cent. Steam refined stock, bright stock, and wax were included in the advance.

Buying of gasoline was exceedingly heavy Saturday. Business was reported good today.

Quotations on U. S. Motor gasoline for first half of August have been 10.75 and 11 cents. For some refiners this represented 0.25-cent advance over spot prices of last week. Several refiners today said they were quoting only for immediate shipment and were not interested in giving prices over the future.

Kerosene, fuel oil and viscous neutrals were unchanged. Kerosene for first half of August has been quoted at 6.25 cents up. Several refiners have advanced their kerosene quotations, but the price range is unchanged.

Bright stocks are scarce. Spot market price has moved from 36 cents flat for light bright to 36 to 36.50 cents. Dark bright is 2 cents below this. One refiner is quoting 36.50 cents on light and 34.50 cents on dark over August.

Wax prices were steady last week, but top quotations moved up 0.25 cent today. Sales have been recorded at the new high.

Late Market Changes

DALLAS—On July 30 Magnolia Petroleum Co. reverted to its price schedule of Feb. 23 on Pine Island, Haynesville, Bull Bayou and El Dorado crude in the north Louisiana-Arkansas fields, which begins with below 28 gravity at 91 cents, plus 5 cents for each succeeding degree of gravity, up to 32-32.9, which is $1.16; and a differential of 3 cents from that grade upward to maximum grade of 52 and above, which is $1.76. This is the same schedule as that of the Standard of Louisiana in north Louisiana and Arkansas fields established Feb. 21, which can be found on page 118 of this issue in the crude price table.

The Magnolia had extended its Mid-Continent crude schedule of July 26 into the above Louisiana and Arkansas fields, but went back to the old schedule four days later, after The Texas Co. had entirely canceled its new postings of July 27 in the Louisiana-Arkansas fields where it purchases.

Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of New York—T. w. and s. s. prices gasoline advanced 1 cent, New York and New England, **July 27.** T. w. price is 18 cents generally, exclusive of state taxes.

Standard of Louisiana—T. w. and s. s. prices gasoline cut 2 cents, Nashville, to 17 cents and 19 cents respectively, including 3 cent state tax, **July 23.**

Continental Oil—S. s. price gasoline advanced 2 cents, Butte, to 25.5 cents, **July 26.** This establishes a 2 cent spread, being the first time since March 12, 1925 that a spread between t. w. and s. s. prices has obtained at that point.

Pipe Line Adopts Six-Day Week

TULSA, July 28.—E. H. Leroux president of the Ok'ahoma Pipe Line Co., Standard of New Jersey subsidiary, announced that, beginning Oct. 1, all employes will be given one full day vacation each week. The work will be so arranged that there will be no interruption of the company's business. Several companies in California have had the six-day week plan in effect for some time.

Several Colored Gasolines Sold in California

LOS ANGELES, July 27

FIVE companies in California are marketing gasoline that is colored.

Two of the companies so doing are Union Oil Co. and Associated Oil Co., both selling Ethyl colored red.

Gilmore Oil Co. has for some time been marketing a gasoline in which Boyceite is used and which is colored blue green, under the trade mark of Blu-Green gasoline, but without asking a premium.

Pan American Petroleum Co. is also marketing, and has been for some time, a gasoline colored green, but not a premium product. The last company to announce a colored product is the United States Refining Co. which is placing on the market a new brand that will be colored purple.

Naturally, practically all of the colored gasolines are being sold from visible pumps and the colored products are rather extensively advertised in local newspapers and through the use of billboards.

This tendency to increase the number of colored gasolines on the market is likely to grow, as in this manner it is possibly better to advertise a particular gasoline, and gradually school the public to look for color, rather than trade mark.

One object of coloring gasoline also is to guard against the dumping of almost any motor fuel into dealers' tanks supposed to contain a particular brand. The gasoline price war in southern California the past few months has made it possible for unscrupulous resellers to purchase cheap gasoline from blind tank wagons at night and dump the product into tanks marked to contain gasoline of well known brands and selling at the official service station price.

It is rumored in Los Angeles that this practice has become more extensive in recent weeks, and due to the fight by practically all refiners to hold their gallonage, and increase it wherever possible, no effort has been made to trace down and prosecute such offenders.

"Cut Out the Q.D.A. Now" State Official Urges

MADISON, Wis., July 30.—Don Montgomery, marketing specialist in the employ of the Wisconsin Department of Markets has appealed to the oil jobbers of Wisconsin to abandon the rebate system involved in the Standard Oil Co.'s quantity discount agreement. He urges them to sell gasoline to all customers at the same price rather than raise the price to small consumers in order that they may continue to make special concessions to big consumers.

Mr. Montgomery's sentiments were expressed in an open letter to the oil industry of Wisconsin under date of July 26. His letter was released to the press of the state at the same time. Excerpts from his letter follow:

"Numerous oil companies and associations of oil companies during the three years this rebate system has been in operation have expressed their belief that the payment of such rebates on gasoline sales is not good business and is not fair to the public. We believe it to be generally true that there are not any oil companies at the present time that are positively and sincerely in favor of the continuance of this discriminatory practice.

"We believe that the oil business is not likely to find a better opportunity than the present to put its professions into practice in this regard. Any new method of pricing gasoline for retail sales that you might endorse or suggest at this time is not likely to be broken down by price wars and secret concessions, because of the short margins. The prospect for a continued firm refinery market is such that you will undoubtedly have ample opportunity to demonstrate both to yourselves and to the public that a one-price policy, which treats all customers alike and puts dealers' margins on a strictly economical basis, is the only fair policy for the oil business.

"We ask you, therefore, to inform us whether you propose to meet the present market situation by eliminating the rebate practice, or by raising the price to the public, or by leaving the decision to the Standard Oil Co. as in the past, with the Independent companies adopting that decision, whatever it may be, without any other recommendation or action.

"Because the public is entitled to know what your price changes mean to them as consumers, and because you will be entitled to public support in the elimination of these rebates, if that should be your decision, we are giving this letter to the press and will be glad to do all that is possible and practicable under our powers."

In an emergency your customer can tear off the end of a Burt Cup and use it as a funnel.

Is it fair

to ask customers to drink from a community glass?

Many large oil companies have decided that it isn't fair, either to employes or customers, to make them drink water from "everybody's" glass. As a result, they have placed clean, crisp Burt Cups in all of their filling stations. With that decision has come increased customer satisfaction; for nothing can mean as much to a hot, dusty motorist as a refreshing drink of cool water from an inviting paper cup.

One service that costs next to nothing

The cost of Burt Cups—the most widely used of paper cups—is so low as to be almost negligible. Yet nothing can add such a touch of *completeness* to your service.

Handsome dispenser FREE

So that you will give Burt Cups an opportunity to prove their case right in your filling station, we are making the exceptional offer stated on the coupon below. Note that with your order for 5,000 Burt Cups you are given a $2.50 dispenser, and that even the cups are sent strictly on trial. Surely you won't overlook this chance to try out a service that has made friends in thousands of stations like yours.

VORTEX MFG. CO.
421 N. Western Ave. Chicago

MONEY BACK

VORTEX MFG. CO.,
421 N. Western Ave., Chicago.
Check one:
☐ Please send 5,000 Burt Cups (Price $12.50) subject to the following liberal terms: With these cups I am to receive a $2.50 Burt Dispenser free and it is understood that my money will be refunded whenever I choose to return the cups and dispenser. (Except price of cups actually used.)
☐ Send additional facts about Burt Cups.

Firm Name .....
Individual .....
Street and Number .....
City and State .....
Number of Filling Stations Operated ..... N.P.S.
(Orders will be delivered through our nearest distributor which means quite a saving to you in express charges.)

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for 1927, 1926, 1925, 1924 arranged for quick reference)

These Prices in Effect July 30, 1928, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Atlantic City, N. J.	16	2	18	20	14
Newark, N. J.	16	2	18	20	14
Annapolis, Md.	16	4	20	23	14
Baltimore, Md.	16	4	20	23	12
Cumberland, Md.	16	4	20	23	14
Washington, D. C.	16	2	18	21	14
Danville, Va.	16	5	21	*	14
Norfolk, Va.	14	5	19	20	14
Richmond, Va.	16	5	21	24	14
Roanoke, Va.	16	5	21	24	14
Petersburg, Va.	16	5	21	24	14
Charleston, W. Va.	16	4	20	23	14
Keyser, W. Va.	16	4	20	23	14
Parkersburg, W. Va.	16	4	20	23	14
Wheeling, W. Va.	16	4	20	23	14
Charlotte, N. C.	16	4	20	23	14
Hickory, N. C.	16	4	20	23	14
Mt. Airy, N. C.	16	4	20	23	14
Salisbury, N. C.	16	4	20	23	14
Charleston, S. C.	16	5	21	24	14
Columbia, S. C.	16	5	21	24	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	18	0	18	*20	15
Albany, N. Y.	18	0	18	21	15
Buffalo, N. Y.	18	0	18	20	15
Rochester, N. Y.	18	0	18	20	13
Syracuse, N. Y.	18	0	18	20	15
Boston, Mass.	18	0	18	20	15
Augusta, Me.	18	4	22	24	15
Manchester, N. H.	18	4	22	24	15
Burlington, Vt.	18	3	21	23	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator selling Socony gasoline.

ATLANTIC REFINING

Pittsburgh, Pa.	17	*	17	*22	14
Philadelphia, Pa.	17	*	17	*22	14
Allentown, Pa.	17	*	17	*22	14
Erie, Pa.	17	*	17	*22	14
Scranton, Pa.	17	*	17	*22	14
Altoona, Pa.	17	*	17	*22	14
Dover, Del.	17	3	20	22	14
Wilmington, Del.	17	3	20	22	14
Providence, R. I.	17	2	19	21	15
Boston, Mass.	17	0	17	19	15
Springfield, Mass.	17	0	17	19	15
Worcester, Mass.	17	0	17	19	15
Hartford, Conn.	17	2	19	21	14
New Haven, Conn.	17	2	19	21	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Ashland, Ky.	15	5	20	22	15.5
Catlettsburg, Ky.	15	5	20	22	15.5
Lexington, Ky.	14	5	19	21	15.5
Louisville, Ky.	14	5	19	21	14
Covington, Ky.	15	5	20	20	15.5
Clarksdale, Miss.	15	4	19	21	14.5
Gulfport, Miss.	††16.5	4	††20.5	22.5	14
Jackson, Miss.	15	4	19	21	14.5
Natchez, Miss.	14.5	4	18.5	20.5	14
Vicksburg, Miss.	14.5	4	18.5	20.5	14
Birmingham, Ala.	17	4	21	23	16
Mobile, Ala.	17	4	21	23	15
Montgomery, Ala.*	18	4	22	24	16.5
Atlanta, Ga.	17	4	21	23	†16.5
Augusta, Ga.	17	4	21	23	†15.5
Macon, Ga.	17	4	21	23	†16.5
Savannah, Ga.	15	4	19	19	14.5
Jacksonville, Fla.	15	5	20	22	13.5
Miami, Fla.	17	5	22	24	15.5
Tampa, Fla.	15	5	20	22	13.5
Pensacola, Fla.	**16	5	**21	23	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Chicago, Ill.	14	0	14	16	11
Decatur, Ill.	14.2	0	14.2	16.2	11.1
E. St. Louis, Ill.	13.1	0	13.1	15.35	10.2
Joliet, Ill.	14.4	0	14.4	16.4	11.3
Peoria, Ill.	14.2	0	14.2	16.2	11.1
Quincy, Ill.	14.2	0	14.2	16.2	10.9
Indianapolis, Ind.	14.2	3	17.2	19.2	12.2
Evansville, Ind.	14	3	17	19	12
South Bend, Ind.	14.4	3	17.4	19.4	12.4
Detroit, Mich.	14.8	3	17.8	19.8	12.7
Grand Rapids, Mich.	14.7	3	17.7	19.7	12.6
Saginaw, Mich.	14.9	3	17.9	19.9	12.8
Green Bay, Wis.	14.6	2	16.6	18.6	11.4
Madison, Wis.	14.3	2	16.3	18.3	11.1
Milwaukee, Wis.	14.1	2	16.1	18.1	10.9
La Crosse, Wis.	15.2	2	17.2	19.2	12
Minneapolis, Minn.	15.2	2	17.2	19.2	11.9
Duluth, Minn.	15.5	2	17.5	19.5	11.9
Mankato, Minn.	15.1	2	17.1	19.1	11.7
Des Moines, Ia.	14.5	3	17.5	19.5	11.3
Davenport, Ia.	14.5	3	17.5	19.5	11.3
Sioux City, Ia.	14.1	3	17.1	19.1	10.9
Mason City, Ia.	14.5	3	17.5	19.5	11.3
St. Louis, Mo.	*13.6	2	15.6	17.9	10.3
Kansas City, Mo.	†14.9	2	16.9	18.9	9.6
St. Joseph, Mo.	†14.5	2	16.5	18.5	10.2
Fargo, N. D.	16.9	2	18.9	20.9	13.9
Grand Forks, N. D.	17.2	2	19.2	21.2	14.2
Minot, N. D.	16.9	2	18.9	20.9	13.9
Pierre, S. D.	15.5	4	19.5	21.5	12.9
Huron, S. D.	15.5	4	19.5	21.5	12.9
Wichita, Kans.	12.8	2	14.8	16.8	9.8
Bartlesville, Okla.	12.5	3	15.5	17.5	9.5

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline is ½c for 750 gals. or more a month; 1c for 2,000 gals. or more a month; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month. All discounts adjusted annually.

*Includes city tax of ½c.

†Includes city tax of 1c.

CONTINENTAL OIL

Denver, Colo.	14	3	17	20	14.5
Pueblo, Colo.	14	3	17	20	14.5
Grand Junction, Colo.	17.5	3	20.5	23.5	18
Casper, Wyo.	15	3	18	21	13
Cheyenne, Wyo.	16	3	19	22	14.5
Butte, Mont.	20.5	3	23.5	25.5	19
Helena, Mont.	20.5	3	23.5	25.5	19
Salt Lake City, Utah	17.5	3½	21	23	17
Boise, Ida.	19.5	4	23.5	25.5	19
Twin Falls, Ida.	19.5	4	23.5	25.5	19
Alburquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA

Phoenix, Ariz.	12	4	16	20	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

S. O. LOUISIANA

Little Rock, Ark.	15	5	20	22	12
Alexandria, La.	14	2	16	18	†14
Baton Rouge, La.	13	2	15	17	†12.5
Lake Charles, La.	14.5	2	16.5	18.5	†14
New Orleans, La.	*14.5	2	*16.5	*18.5	†14
Shreveport, La.	14.5	2	16.5	18.5	†13
Lafayette, La.	14	2	16	18	†13.5
Bristol, Tenn.	17	3	20	22	14
Chattanooga, Tenn.	16.5	3	19.5	21.5	15
Knoxville, Tenn.	15	3	18	20	15
Nashville, Tenn.	14	3	17	19	15
Memphis, Tenn.	13	3	16	18	14

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. OHIO

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
All Ohio points	14	3	17	19	14

S. O. NEBRASKA

Omaha, Neb.	14.25	2	16.25	18.25	11.25
McCook	15.75	2	17.75	19.75	12.75
Norfolk	14.75	2	16.75	18.75	11.75
North Platte	15.75	2	17.75	19.50	12.50
Scottsbluff	15.75	2	17.75	19.75	12.25

MAGNOLIA PETROLEUM

Muskogee, Okla.	15	3	18	20	11
Oklahoma City	14	3	17	19	11
Tulsa, Okla.	13	3	16	18	11
Fort Smith, Ark.*	13	*3	16	18	12
Little Rock, Ark.	15	5	20	22	12
Texarkana, Ark.*	13.5	*3	16.5	20.5	12
Dallas, Tex.	13	3	16	20	11
Fort Worth, Tex.	13	3	16	19	11
Houston, Tex.	13	3	16	20	15
San Antonio, Tex.	13	3	16	19	10
El Paso, Tex.	14	3	17	20	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 3c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		19	....

*Includes 2c state tax. †Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
ONTARIO					
Toronto	19.5	3	22.5	26	21
Ottawa	19.5	3	22.5	26	21
Cochrane	24.5	3	27.5	36	26
Ft. William	22.5	3	25.5	29	22.5
MANITOBA					
Winnipeg	21.5	3	24.5	28	21.5
SASKATCHEWAN					
Regina	25.5	3	28.5	33	25.5
ALBERTA					
Edmonton	26.5	3	29.5	33	26.5
Calgary	22.5	3	25.5	29	22.5
BRITISH COLUMBIA					
Vancouver	21	3	24	28	22
QUEBEC					
Montreal	20.5	5	25.5	29	21
Quebec City	22.5	5	27.5	33	23
Three Rivers	22.5	5	27.5	31	23
NEW BRUNSWICK					
St. John	22.5	3	25.5	30	22
Moncton	22.5	3	25.5	30	22
NOVA SCOTIA					
Halifax	22.5	5	27.5	32	22
Sydney	22.5	5	27.5	32	22
PRINCE EDWARD ISLAND					
Charlottetown	22.5	5	27.5	31	22

Note: In districts surrounding these points 1c additional is added to city price.

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Colorado, 1/10c on both; Florida, 1/8c; Indiana, 2/25c; Kansas, 1/50c; Louisiana, 1/32c on gasoline, 1c on kerosene; Minnesota, 3/50c; Missouri, 1/50c; Nebraska, 3/50 to 1/2c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 4/25c; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c on gasoline and 1/2c on kerosene; Wisconsin, 3/50c.

Kerosene inspection fees only: Iowa, 13/100c; Michigan, 1/5 to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above states or other states there are local inspection fees.

Gasoline Market Stronger At Atlantic Ports

Staff Special
NEW YORK, July 28

EASTERN domestic markets took on a brighter aspect this week as a result of advances in gasoline tank car prices of from 0.25 to 0.50-cent and a 1-cent increase in tank wagon price. Good motoring weather bringing increased consumption was another favorable factor. Demand from jobbers was reported to be exceptionally good.

Tank wagon prices were advanced 1 cent throughout New York and New England by the Standard Oil Co. of New York, effective July 27.

The first indication that eastern domestic tank car markets were seeking higher levels was when one seller in New York late Wednesday announced that effective immediately, U. S. Motor and California gasoline would be increased 0.25-cent to 11 and 11.25 cents, respectively.

This was followed the same afternoon by an announcement by several major companies that effective Thursday their price would be increased 0.50-cent at all points along the coast. Thursday morning the seller who had made the 0.25-cent increase announced an additional increase of 0.25-cent on U. S. Motor to 11.25 cents but California gasoline would remain at 11.25.

Thursday saw most refiners along the coast up to the new levels except in New England where advances were a little slower.

Up to the date of the advances, sellers reported U. S. Motor and California gasoline exceptionally firm and said they had found no evidence of anything being sold under the prices being quoted.

The market at New York began the week with 10.75 cents being quoted by all sellers. As the week ended most sellers were asking 11.25 cents. California gasoline was available at from 11.25 to 11.50, some sellers having increased their price 0.25-cent while others went up 0.50-cent.

Philadelphia was up in line with New York on U. S. Motor but California gasoline was generally quoted at 11.25 cents flat.

Baltimore markets showed a range in quotations as the week ended. U. S. Motor gasoline was being quoted at both 11 cents and 11.25 cents by refiners at this point. California gasoline was quoted at 11.25-cents flat. This represents 0.25-cent advance on California and 0.25 to 0.50-cent advance on U. S. Motor gasoline. At other southern seaboard points prices were advanced 0.50-cent by all sellers and quoted at 11.25 cents, Norfolk; 11 cents, Charleston and 10.75 cents at both Savannah and Jacksonville.

U. S. Motor gasoline in New England was advanced 0.50-cent by several sellers but by the end of the week gasoline was reported still available at 11.25-cents or a minimum of 12.50-cents delivered.

Kerosene markets were steady throughout the week. At New York and Baltimore water white kerosene was available at from 7.50 to 8 cents. At Philadelphia the price ranged from 7.75 to 8 cents. Sellers reported a satisfactory movement.

The burning oil market was generally unchanged.

Price Gyrations Hold Up Buying for Export

Staff Special
NEW YORK, July 28

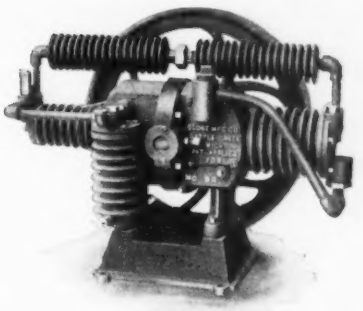
FOLLOWING the brisk buying of the past month or so and the steadily advancing gasoline prices, foreign buying at the Gulf was at a standstill during the week ended July 28. No cargo sales were reported and the several inquiries that were in the market at the beginning of the week were withdrawn. Suppliers continued to report material for prompt shipment scarce.

Despite the inactivity, seller's ideas of prices for gasolines were well maintained throughout the week. The gasoline prices now being quoted are 0.375 to 0.50-cent higher than those at which the last cargoes were closed about a week ago. Suppliers, however, are optimistic and confident that the new prices will hold in the event of any business being transacted.

This week Standard Oil Co. of N. J. again advanced cased export gasoline at New York 0.50-cent. The last advance by Standard was a 0.50-cent advance the previous week.

The week began with numerous inquiries hanging over from the last week but these were withdrawn shortly after the week got under way. The

EXHIBIT B



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GLOBE
GARAGE & FILLING STATION EQUIPMENT

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, represent majority of quotations and sales.)

	July 30	July 23	July 16
U.S. Motor gasoline, New York harbor	11.25	10.75	10.75
U.S. Motor gasoline, Philadelphia	11.25	10.75	10.75
U.S. Motor gasoline, Boston district	*11.75	*11.25	*11.25
U.S. Motor gasoline, Providence district	*11.75	*11.25	*11.25
U.S. Motor gasoline, Baltimore	11.25	10.75 –11.00	10.75 –11.00
U.S. Motor gasoline, Norfolk	11.25	10.75	10.75
U.S. Motor gasoline, Charleston	11.00	10.50	10.50
U.S. Motor gasoline, Savannah	10.75	10.25	10.25
U.S. Motor gasoline, Jacksonville	10.75	10.25	10.25
California U.S. Motor gasoline, New York Harbor	11.25 –11.50	11.00	11.00
California U.S. Motor gasoline, Baltimore	11.25	11.00	11.00
California U.S. Motor gasoline, Philadelphia	11.25	10.75	10.75
Water white kerosene, New York Harbor	7.50 – 8.00	7.50 – 8.00	8.00 – 8.25
Water white kerosene, Philadelphia	7.75 – 8.00	7.75 – 8.00	8.00 – 8.25
Water white kerosene, Baltimore	7.50 – 8.00	7.50 – 8.00	8.00
28-34 gas oil, New York harbor	5.00	5.00	5.00
28-34 gas oil, Boston district	4.75 – 5.00	4.75 – 5.00	5.00 – 5.25
36-40 furnace oil, New York harbor	6.00	6.00	6.00
36-40 furnace oil, Boston district	6.25	6.25	6.25 – 6.50
Grade C bunker oil, New York harbor	$1.05	$1.05	$1.05
Grade C bunker oil, Boston district	$1.10	$1.10	$1.10
Diesel oil, New York harbor	$2.00	$2.00	$2.00

Note: Above prices do not include inspection tax levied in some states.
*Minimum of 13c delivered.

MEDICINAL OILS			
Russian 885-890 s.g., 325-330 vis	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
Russian 870-875 s.g., 150-155 vis	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
Russian 860-865 s.g., 80-85 vis	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	July 30	July 23	July 16
U. S. Motor gasoline	26.90	26.40	25.90
43-45 150 w.w. kerosene	18.15	18.15	18.40
42-44, 110 s.w. kerosene	17.15	17.15	17.40
CYLINDER OILS			
Bright stock, dark	40.00 –41.00	40.00 –41.00	40.00 –41.00
600 D filtered	30.00 –32.00	30.00 –32.00	30.00 –32.00
600 Warren E filtered	24.50 –25.50	24.50 –25.50	24.50 –25.50
600 s.r. unfiltered	19.00 –20.00	19.00 –20.00	19.00 –20.00
650 s.r. unfiltered	21.00 –22.00	21.00 –22.00	21.00 –22.00
600 flash s.r.	24.00 –26.00	24.00 –26.00	24.00 –26.00
630 flash, s.r.	34.00 –36.00	34.00 –36.00	34.00 –36.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.50	19.50	19.50
250 vis. No. 6 color	18.50	18.50	18.50
200 vis. No. 6 color	18.00	18.00	18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3¼ color	19.50	19.50	19.50
100 vis. No. 2¼ color	15.25	15.25	15.25
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	34.50	34.50	34.50
500 vis. No. 6½ color	32.50	32.50	32.50
400 vis. No. 7¼ color	30.50	30.50	30.50
300 vis. No. 6 color	29.50	29.50	29.50
200 vis. No. 3¼ color	23.00	23.00	23.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)

WHITE CRUDE SCALE (In barrels)

	July 30	July 23	July 16
122-124 A.m.p.	4.50 – 4.75	4.375– 4.50	4.375– 4.50
124-126 A.m.p.	4.50 – 4.875	4.375– 4.50	4.375– 4.50
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	5.125– 5.25	5.00 – 5.125	5.00 – 5.125
125-127 A.m.p.	5.125– 5.25	5.00 – 5.125	5.00 – 5.125
128-130 A.m.p.	5.375– 5.50	5.25 – 5.375	5.25 – 5.375
130-132 A.m.p.	*6.00 – 6.125	*6.00	*6.00
133-135 A.m.p.	*6.625– 6.875	*6.50 – 6.75	*6.50 – 6.75
135-137 A.m.p.	*7.125– 7.375	*7.00 – 7.25	*7.00 – 7.25
YELLOW CRUDE SCALE			
124-126 A.m.p.	4.25 – 4.375	4.25 – 4.375	4.125– 4.25

*Prices nominal.

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary)

GASOLINE	July 30	July 23	July 16
U.S. Motor	10.00	10.00	9.625– 9.75
60-62, 400 e.p.	10.75 –11.00	10.75	10.50 –10.625
61-63, 390 e.p.	11.00 –11.25	11.00	10.75 –10.875
64-66, 375 e.p.	12.00	11.75 –12.00	11.00 –11.25
U. S. Motor, cases (cargoes)	$1.90	$1.90	$1.75 –$1.85
64-66, cases (cargoes)	$2.05	$2.05	$1.85 –$1.95

*Sales only.

KEROSENE			
44 water white	7.25	7.25	7.25
41-43 prime white	6.25	6.25	6.25
Water white, cases (cargoes)	$1.65	$1.65	$1.65
Prime white, cases (cargoes)	$1.55	$1.55	$1.55

*Sales only.

DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil.	3.875– 4.00	3.875– 4.00	3.875– 4.00
*30-32 translucent gas oil.	4.00	4.00	4.00
Grade C bunker oil	$0.95 – 1.10	$0.95 – 1.10	$0.95 – 1.10
Grade C bunker oil, cargoes	$0.70 – 0.80	$0.70 – 0.80	$0.70 – 0.80

*Less than ½ of 1% sulfur.

MEXICAN CRUDE AND BUNKER OILS (F.O.B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$1.00 –$1.02	$1.00 –$1.02	$1.00 –$1.02
Grade C bunker oil, for bunkering purposes, taxes paid	$1.10	$1.10	$1.10

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F.; cold test 0) (Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
200 vis. No. 3 unfiltered pale	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
300 vis. No. 3 unfiltered pale	9.25 – 9.50	9.25 – 9.50	9.25 – 9.50
500 vis. No. 3½ unfiltered pale	10.50 –11.50	10.50 –11.50	10.50 –11.50
750 vis. No. 4 unfiltered pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200 vis. No. 5-6 red oil	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 vis. No. 5-6 red oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
500 vis. No. 5-6 red oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750 vis. No. 5-6 red oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
1200 vis. No. 5-6 red oil	14.50 –15.50	14.50 –15.50	14.50 –15.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	July 30	July 23	July 16
Gasoline, U. S. Motor, 53-55 Gravity	8.50 – 9.00	8.25 – 8.50	8.25 – 8.50
Gasoline, U. S. Motor, blends and special cuts	9.00 – 9.50	8.50 – 9.00	8.50 – 9.00
Gas Oil, 30-34, per barrel	$1.10 –$1.20	$1.10 –$1.20	$1.10 –$1.15
Diesel Oil, 27 plus, per barrel	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18, per barrel	$0.70 –$1.00	$0.70 –$1.00	$0.75 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Roumanian buyer who sought two cargoes of approximately 100,000 barrels of U. S. Motor and 64-66, 375-end point gasoline was reported to have obtained the goods he needed at home.

Just why foreign buyers withdrew from the market was problematical. One supplier said that as a usual thing foreign buyers are eager to buy when prices are on the up-grade but the advancing prices seemed to have had just the opposite effect this time.

It was thought in one direction that foreign buyers had been somewhat stunned by rapid forward strides in gasoline prices at the Gulf and that they were holding off until they could ascertain just what the condition of the market was.

Suppliers generally looked for a resumption of buying within a short time for foreign requirements during September and October. One supplier said that he didn't look for any overwhelming demand because a number of foreign buyers have already covered their September requirements and by October and November the heaviest part of the motoring season would be near its end.

High gravity 61-63, 390 end point gasoline and 60-62, 400 end point gasoline were quoted a bit higher as the week ended. They were up 0.25-cent and were quoted at 10.75 to 11 and 11 to 11.25 cents, respectively. U. S. Motor gasoline continued to be quoted at 10 cents, 64-66, 375 end point was generally held at 12 cents.

Water white and prime white kerosene remained unchanged throughout the week. There have been no recent sales of these commodities but sellers generally see no particular reason for their raising or lowering their quotations.

Bunker oil was found to be a little lower this week. Prices being quoted were $0.95 to $1.00. Gas oil prices were unchanged.

Correction

In the list of competing Standard Oil companies published on Page 74 of NATIONAL PETROLEUM NEWS for July 25, 1928, a subhead "Oregon" was lost and the names of two companies competing in Oregon appeared under the Wyoming list. Correct listings for Oregon and Wyoming follow:

Oregon

Original	Now Competing
S. O. California	S. O. New York

Wyoming

Continental	Prairie
	S. O. Indiana

DETROIT, Mich.—L. B. Beck, who was formerly for four years with the Youngstown Boiler & Tank Co., Youngstown, O., at its Detroit office, is now with the Detroit office of Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., in the General Motors building.

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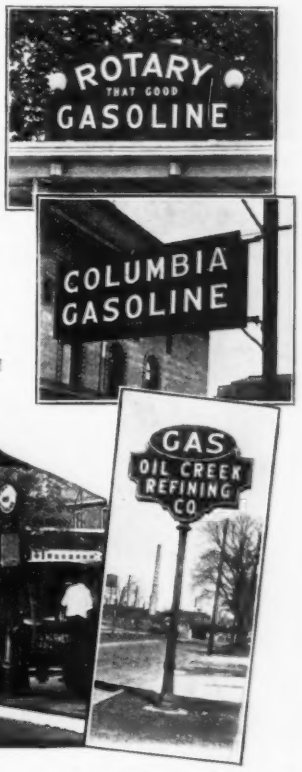

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YOUNGSTOWN, OHIO
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OILS and GREASES

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Oil City - - - - - Pa.
Refineries: Reno, Pa. and Tidioute, Pa.

Pioneer refiner of 100% Pennsylvania Motor Oils

Crude Price Changes

TULSA—On July 26 the Carter Oil Co. (Standard of New Jersey subsidiary) again took the lead in posting new prices on Oklahoma-Kansas crude as it did on Feb. 21 when all other companies fell in line. Carter also regraded light oil on July 26, making 44 and above its maximum grade, instead of 52 and above which had previously been top grade. This regrading of light oil was to meet a similar regrading by the Humble Oil & Refining Co. on Feb. 21, which company had been the only one up to July 26 to have 44 and above its top grade.

The change by Carter amounted to a reduction of from 2 to 14 cents on oil below 32 gravity in Oklahoma and Kansas, and an advance of from 2 to 24 cents on oil of 33 gravity and above. The price differential for oil below 32 is 7 cents, and for oil 33 and over, it is 5 cents. Carter's minimum grade is 25 to 25.9 gravity, which is posted at 67 cents, with 7 cents additional for each degree of gravity up to 32-32.9, which is unchanged at $1.16. From that grade upward, the differential is 5 cents, making 33-33.9 gravity $1.21, with maximum grade of 44 and above at $1.76 per barrel.

Prairie's new prices, compared with old, in Oklahoma, Kansas, north and east central Texas, effective July 26, are:

	New	Old	Amount change cents
28-28.9	$0.88	$0.96	— 8
29-29.9	.95	1.01	— 6
30-30.9	1.02	1.06	— 4
31-31.9	1.09	1.11	— 2
32-32.9	1.16	1.16	0
33-33.9	1.21	1.19	+ 2
34-34.9	1.26	1.22	+ 4
35-35.9	1.31	1.25	+ 6
36-36.9	1.36	1.28	+ 8
37-37.9	1.41	1.31	+10
38-38.9	1.46	1.34	+12
39-39.9	1.51	1.37	+14
40-40.9	1.56	1.40	+16
41-41.9	1.61	1.43	+18
42-42.9	1.66	1.46	+20
43-43.9	1.71	1.49	+22
44-44.9	1.76	1.52	+24
45-45.9		1.55*	
46-46.9		1.58*	
47-47.9		1.61*	
48-48.9		1.64*	
49-49.9		1.67*	
50-50.9		1.70*	
51-51.9		1.73*	
52 and above		1.76*	

*+3 to 21c.

The Carter company on Feb. 21 had taken the lead in reducing heavy grades of Mid-Continent crude and advancing light oils.

The July 26 change was met immediately by the Prairie Oil & Gas Co., the Magnolia Petroleum Co., the Humble Oil & Refining Co., the Sinclair Oil & Gas Co., and the Gypsy Oil Co. It was met on July 27 by The Texas Co.

Prairie's gravity schedule differs from Carter's in that Prairie's postings start with minimum grade of 28 to 28.9, which is 88 cents. The rest of the schedule conforms to the Car-

ter postings. This change by the Prairie amounts to a reduction of from 2 to 8 cents on oil below 32 gravity, and an advance of from 2 to 24 cents on oil testing 33 and over. Last previous change by the Prairie was on Feb. 21, when it cut heavy grades from 1 to 6 cents, and advanced light grades from 1 to 16 cents.

Magnolia's new schedule in Oklahoma, Kansas, north and east central Texas leaves oil below 32 gravity unchanged from Feb. 16, with minimum grade of below 30 gravity at 75 cents; 30-30.9 at 90 cents and 31-31.9 at $1.05. Its next grade is 32-32.9 at $1.16, and the rest of the schedule conforms to that of Prairie.

Magnolia also extended its Mid-Continent price schedule into north Louisiana and Arkansas fields where it buys on July 26. Its new price on below 28 gravity in Pine Island, Haynesville, Bull Bayou and El Dorado is 81 cents, with 7 cents additional for each succeeding degree of gravity, up to and including 32-32.9, which is $1.16. Rest of the schedule conforms to the Mid-Continent postings. It also advanced Crane, Upton, and Winkler county crude in west Texas, and that part of Glasscock county not included in the Chalk field, 5 cents per barrel, making new price in all four counties 65 cents. On the same day it also met Humble's new price and gravity schedule in the Texas Panhandle.

The Humble Oil & Refining Co. met the Prairie schedule in Ranger, north Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona fields. Its schedule begins with below 25 gravity, at 60 cents.

The Texas Co. met it in Oklahoma, north, north central and central Texas. Its schedule begins with 24-24.9 gravity at 60 cents.

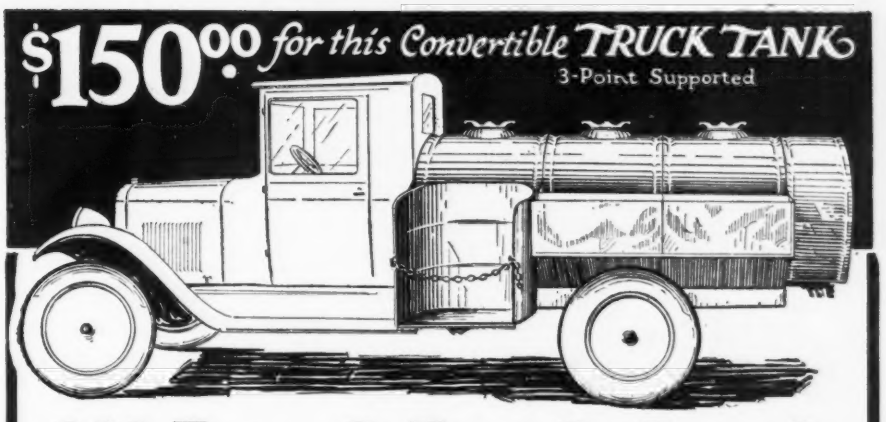
Sinclair's schedule starts with 24 and below at 60 cents and follows Carter throughout. Gypsy is the same throughout as Carter.

* * *

HOUSTON—On July 26 Humble Oil & Refining Co. revised its gravity and price schedules in the Panhandle, Tex. district, by posting a change which resulted in a decrease of 2 cents on one grade, up to an increase of 30 cents on light oils. It also advanced Winkler, Crane, Upton, Crockett and Pecos county crudes 5 cents per barrel, to a flat price of 65 cents in all fields. Last previous change on these West Texas crudes was on Aug. 23, 1927, when a flat price of 60 cents was posted.

* * *

CASPER—On July 26 Midwest Refining Co. posted the same prices on Salt Creek as Prairie posted on Mid-Continent crude, except that Salt Creek gravity schedule begins with 29-29.9 at 95 cents; with 7 cents additional for each degree of gravity up to 32-32.9 which is $1.16, and



100 Extra Gallons In Barrels

375 gallons in the tank. 50 gallons on each side in barrels. That totals 475 gallons with room enough left in the side racks for eight 10-gallon cans if you choose to load the truck that heavy. The New Convertible Truck Tank is interchangeable on Chevrolet Trucks or the New Ford Truck. Also on others with back of cab lengths around 80 inches. In the space of an hour side rack may be replaced with the vertical barrel rack. It carries the extra load low down and right side up—safe extra load that isn't top heavy. The New Convertible Truck Tank is 3-point Supported. The tank, the mounting, the pipe lines and the bucket box are welded into an integral unit of steel.

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Faucets, barrel racks and side tanks are extra.

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Crude Oil Prices, as Posted by Major

(Crude prices for years 1924-1925-1926-1927 in

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$3.20
Bradford District Oil in National Transit Lines (Bradford District)	3.20
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.10
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.10
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.00
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.85
Keister Grade in National Transit Lines (Butler Co.)	1.20
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.45
Corning Grade in Buckeye Pipe Lines (Ohio)	1.70
Corning, O., heavy grade	1.60
Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.70
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines	$1.55

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective July 27, 1928

Wooster	$1.67	Princeton	$1.55
Lima	1.60	Illinois	1.55
Waterloo	1.20	Plymouth	1.28
Indiana	1.37	West Kentucky	1.48

CANADIAN CRUDE

Posted by Imperial Oil, Ltd.

Canadian Petrolia	$2.00
Oil Springs	2.07

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective July 26, 1928

28-28.9	$0.88	37-37.9	$1.41
29-29.9	0.95	38-38.9	1.46
30-30.9	1.02	39-39.9	1.51
31-31.9	1.09	40-40.9	1.56
32-32.9	1.16	41-41.9	1.61
33-33.9	1.21	42-42.9	1.66
34-34.9	1.26	43-43.9	1.71
35-35.9	1.31	44 and above	1.76
36-36.9	1.36		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Effective July 26, 1928

Below 25	$0.60	26-26.9	$0.74
25-25.9	0.67	27-27.9	0.81

Rest of schedule same as Prairie's.

Mirando, Tex.	$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

July 26, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades, unchanged from Feb. 16:

Below 30	$0.75
30-30.9	0.90
31-31.9	1.05
Glasscock, Crane, Upton, Winkler Counties	0.65
Chalkfield (Howard Co.)	0.80
Iatan district	0.93
Corsicana heavy	1.00

Carter Oil Co.

(Oklahoma and Kansas)

July 26, same schedule as Prairie plus these grades:

25-25.9	$0.67	27-27.9	$0.81
26-26.9	0.74		

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Hutchinson and Carson Counties:

Below 32	$0.69	38-38.9	$1.06
32-32.9	0.76	39-39.9	1.11
33-33.9	0.81	40-40.9	1.16
34-34.9	0.86	41-41.9	1.21
35-35.9	0.91	42-42.9	1.26
36-36.9	0.96	43-43.9	1.31
37-37.9	1.01	44 and above	1.36

Wheeler County:

Below 30	$0.65	37-37.9	$1.11
30-30.9	0.72	38-38.9	1.16
31-31.9	0.79	39-39.9	1.21
32-32.9	0.86	40-40.9	1.26
33-33.9	0.91	41-41.9	1.31
34-34.9	0.96	42-42.9	1.36
35-35.9	1.01	43-43.9	1.41
36-36.9	1.06	44 and above	1.46

Gray County:

Below 29	$0.68	37-37.9	1.21
29-29.9	0.75	38-38.9	1.26
30-30.9	0.82	39-39.9	1.31
31-31.9	0.89	40-40.9	1.36
32-32.9	0.96	41-41.9	1.41
33-33.9	1.01	42-42.9	1.46
34-34.9	1.06	43-43.9	1.51
35-35.9	1.11	44 and above	1.56
36-36.9	$1.16		

WEST TEXAS

Humble Oil & Refining Co.

Effective July 26, 1928

Winkler, Crane, Upton, Crockett, and Pecos Counties	$0.65

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto

Effective Feb. 21, 1928

Below 28	$0.91	40-40.9	$1.40
28-28.9	0.96	41-41.9	1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76

Cotton Valley, below 36, $0.75. Rest of Cotton Valley schedule, beginning with 36-36.9 at $1.28, same as Caddo, Homer, etc.

Smackover, below 24	$0.75
do 24 and above	.90
Bellevue	1.25
*Urania, La.	.85
†East El Dorado	1.00

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Smackover prices posted on Feb. 7 by S. O. La. Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia: on Feb. 6 by La. Oil Refg. Corp.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Below 28	$0.85	30-30.9	$0.91
28-28.9	0.87	31-31.9	0.93
29-29.9	0.89	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

5 cents additional for each grade up to maximum grade of 37 and above, which is $1.41. This change amounts to a cut of from 2 to 6 cents on heavy grades and an advance of from 2 to 10 cents on light oil. Last previous change on Salt Creek was on Feb. 21.

* * *

CASPER—On July 27 Midwest Refining Co. advanced Grass Creek light, Elk Basin, Osage, Greybull and Torchlight, Wyo., Cat Creek, Mont. and Hogback, N. Mex. crudes 15 cents per barrel. This advance was met on the same day by the Ohio Oil Co. on Elk Basin and Grass Creek, at which time the Ohio also advanced Lance Creek, Wyo. 15 cents; Big Muddy and Rock Creek, Wyo. and Artesia, N. Mex. crude 8 cents.

* * *

FINDLAY—On July 27 Ohio Oil Co. advanced Central States crude from 5 to 10 cents per barrel. Lima, Indiana, Illinois, Princeton and Plymouth were advanced 5 cents, and Wooster 10 cents. This was the first change on Wooster crude this year, last previous one having been a cut of 20 cents on Aug. 2, 1927.

* * *

SHREVEPORT—On July 27 Root Refineries, Inc., announced the initial posting on Champagnolle crude in Union county, Ark., which crude had previously been purchased under the El Dorado field postings. The new schedule is: below 24 gravity, $0.75; 24-27.9, $0.85; 28-29.9, $1.00; 30-32.9, $1.15; and 33 and above, $1.25.

* * *

OIL CITY—On July 30 Joseph Seep Purchasing Agency advanced Somerset crude 15 cents per barrel, making new price $1.70. Last previous change was 10 cent advance on June 13.

* * *

TORONTO—On July 28 Imperial Oil Refineries, Ltd., advanced Canadian crude 5 cents per barrel, making new price of Petrolia $2 and Oil Springs $2.07.

For new prices on all grades, see crude price table above.

More Gulf Coast Lubes Moving

HOUSTON, July 30.—Gulf Coast zero cold test lubricants are reported moving in greater volume than in a similar period last year. Inquiries continue to come in for winter contract requirements from northern jobbers. Stocks are down to satisfactory levels. Prices are unchanged at recently higher levels, except fuel oil which is down 10 cents.

TULSA, July 28.—The Gilmer Oil Co.'s refinery at Ringling, Okla., is being repaired preparatory to resumption of operations Aug. 1. The plant is of 1,500 barrels skimming capacity. It has been closed down for a year or more.

Purchasers in All Fields (in Effect July 30)

OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A.....$1.20	*Grades B.....$1.15
‡Grades B(light crude):	
35-35.9.....$1.37	38-38.9.....$1.43
36-36.9..... 1.39	39-39.9..... 1.45
37-37.9..... 1.41	40 and above... 1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective July 26, 1928)

‡Salt Creek 29-29.9	$0.95
" " 30-30.9	1.02
" " 31-31.9	1.09
" " 32-32.9	1.16
" " 33-33.9	1.21
" " 34-34.9	1.26
" " 35-35.9	1.31
" " 36-36.9	1.36
" " 37 and above	1.41
Elk Basin	1.48
Grass Creek light	1.48
Big Muddy	1.33
Lance Creek	1.48
Rock Creek	1.33
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.48
‡Cat Creek, Mont	1.48
Sunburst, Mont	1.65
‡Hogback, N. Mex	1.48
Artesia, N. Mex	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Montebello	Coyote Hills	Santa Fe Springs	Midway-Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
16-16.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
17-17.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
18-18.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
19-19.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
20-20.9	.85	.85	.85	....	.85	....	.85	.85	....	.77	.77	.76	.76	.85	.85
21-21.9	.86	.86	.85	....	.86	....	.85	.86	$ .85	.79	.79	.77	.77	.85	.85
22-22.9	.87	.87	.85	....	.87	....	.85	.87	.85	.81	.81	.78	.78	.85	.85
23-23.9	.88	.88	....	....	.88	....	.85	.88	.85	.83	.83	.79	.79	.85	.85
24-24.9	.89	.89	....	....	.89	$ .89	.85	.89	.85	.85	.85	.80	.80	.85	.85
25-25.9	.90	.90	....	....	.90	.90	.86	.90	.86	.87	.87	.81	.81	.86	.86
26-26.9	.92	.92	....	....	.92	.92	.87	.91	.87	.89	.89	.83	.82	.87	.87
27-27.9	.94	.94	....	....	.94	.94	.88	.92	.88	.91	.91	.85	.83	.88	.88
28-28.9	.96	.96	....	....	.96	.96	.89	.93	.89	.93	.93	.87	....	.89	.89
29-29.9	.98	....	....	....	.98	.98	.90	.94	.91	.96	.96	.89	....	.91	.91
30-30.9	1.00	....	....	....	1.00	1.00	.91	.95	.93	.99	.99	.91	....	.93	.93
31-31.9	1.03	....	....	....	....	1.03	....	....	.95	1.02	1.02	.93	....	....	.95
32-32.9	1.06	....	....	....	....	1.06	....	....	.97	1.05	1.05	.95	....	....	.97
33-33.9	....	....	....	....	....	1.09	....	....	.99	1.08	1.08	.97	....	....	.99
34-34.9	....	....	....	....	....	1.12	....	....	1.01	....	1.11	.99	....	....	1.01
35-35.9	....	....	....	....	....	1.15	....	....	1.03	....	....	1.01	....	....	1.03
36-36.9	....	....	....	....	....	1.18	....	....	1.06	....	....	....	....	....	1.06
37-37.9	....	....	....	....	....	1.21	....	....	1.09	....	....	....	....	....	1.09
38-38.9	....	....	....	....	....	1.24	....	....	1.12	....	....	....	....	....	1.12
39-39.9	....	....	....	....	....	1.27	....	....	1.15	....	....	....	....	....	1.15
40-40.9	....	....	....	....	....	1.30	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	....	....	1.33	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	....	....	1.36	....	....	....	....	....	....	....	....	....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

	July 30	July 23
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, cwt.	$0.70-0.75	$0.70-0.75
Sal Soda wks.	$0.90	$0.90
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks. lb.	3.50-5.00	3.50-5.00
Litharge, powdered, casks, cwt.	8.75	8.75

Compounders' Supplies

	July 30	July 23
Vegetable Oils		
Linseed carloads, spot....lb.	10.00	10.00
Tanks, spot	9.20	9.20
Soya Bean, Tanks, coast, lb.	9.50-9.75	9.50-9.75
Oleic Acid		
Distilled, tanks.....lb.	9.00	9.00
Distilled, bbls.....lb.	9.75	9.75
Saponified, tanks.....lb.	9.25	9.25
Saponified, bbls.....lb.	10.00	10.00
Lard Oils		
Prime Winter Strained....lb.	16.25	16.25
Extra Winter Strained...lb.	13.00	13.00
Extra.....lb.	12.50	12.50
Extra No. 1.....lb.	12.25	12.25
No. 1.....lb.	11.50	11.50
No. 2.....lb.	11.25	11.25
Tallow oil.....lb.	11.375	11.375
Neatsfoot Oil		
Pure, bbls.....lb.	15.25	15.25
Extra, bbls.....lb.	12.50	12.50
No. 1 bbls.....lb.	11.75	11.75
Cold Pressed.....lb.	18.50	18.50
Fish Oils		
Menhaden Oil		
Light Pressed ..... gal.	62-64	62-64
Light Pressed, tank cars, N. Y. gal.	54-56	54-56
White bleached.....gal.	68-70	68-70
Yellow bleached.....gal.	66-68	66-68
Whale, extra winter bleached, gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y.....gal.	52	52
Steam distilled turpentine, Savannah.....gal.	47	47
Gum turpentine, N. Y....gal.	55	57
Gum turpentine, f.o.b. cars Savannah.....gal.	51	52
Wood Rosin F, N. Y.....bbl.	$8.30	$8.30
Wood Rosin F, Savn'h..bbl.	$7.50	$7.50
Gum Rosin B, N. Y.....bbl.	$8.90	$9.10
Gum Rosin B, f.o.b. cars Savannah ..... bbl.	$8.15	$8.40
Rosin oil, pure.....gal.	57	57
Rosin oil, compounded...gal.	47	47
Pine Tar		
Kiln burnt.....bbl.	$12.50-14.00	$12.50-14.00
Retort.....bbl.	$13.50-15.50	$13.50-15.50
Alcohol		
Denatured, Formula 5, in bbls., per gal.....	52-56	52-56

*Nominal.

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Chicago Market is Unsettled By Crude Price Changes

Staff Special

CHICAGO, July 28

THE unexpected changes in Mid-Continent crude oils by the major purchasers announced July 26 threw the Chicago resale market into an unsettled state which continued until the end of the week. Majority of refiners immediately withdrew quotations on gasoline and kerosene and although some were still refusing to name a price as the week closed, the bulk of them were quoting approximately .25 to .50 cent higher.

This brought the market on 58-60 U. S. Motor gasoline to a strong 9-cent level for the first time in approximately 18 months. Prior to this jump in price, the U. S. Motor market had been climbing steadily. The week opened with the bulk of sales at 8.50 to 8.75 cents but by Wednesday virtually none was available under 8.625 cents and a few factors reported sales at 8.875 cents.

Gasoline demand was excellent prior to the crude change but slackened appreciably July 26 and 27. "Watchful waiting" until the situation cleared, appeared to be the policy of both jobbers and refiners. Refiners quoting on the spot market Saturday practically all were refusing to move goods to other than their regular spot customers and on contract shipments.

Nearly all refiners who were quoting on gasoline for August delivery withdrew these quotations also. A marketer who reported hunting high and low July 27 to buy some U. S. Motor for August delivery stated that he was unable to close any business. The majority of refiners report being in good shape as to gasoline orders and the few marketers who were long on goods said they were not being pushed for instructions.

Gossip in the Chicago market, other than that caused by the crude change, was mostly whether or not the Q.D.A. or tank wagon would be changed by the Standard of Indiana. The situation is now worse for the jobbers who buy on spot market than it has been this season and opinion was expressed by most of the local trade that a change would be made soon.

The spread between U. S. Motor and high test gasolines continues to widen. Whereas for some time past U. S. Motor has been selling approximately .625 of a cent under the 64-66, 375 end point grade, the latter is now moving from 1 to 1.50 cents higher in most cases. Exporters have been extremely active in Oklahoma and Texas and have virtually cleaned the field of 64-66, 375 end point gasoline.

Only a few refiners reported having any of this grade and they were moving it mostly to regular customers. The 64-66, 375 end point grade opened July 23 at 9.50 to 9.75 cents and was quoted nominally at 10 to 10.25 cents on July 27.

Sales were reported as high as 10.50 cents. The 60-62, 400 end point gasoline moved at 8.875 to 9 cents July 13, at 8.875 to 9.125 cents July 14, at 9 to 9.125 cents July 15 and closed the week at 9.375 to 9.50 cents. Gasoline of 60-62, 437 end point moved mostly at 9.125 to 9.25 cents Saturday after selling at 8.75 to 8.875 cents previously.

Kerosene prices were advanced approximately .25 cent by most sellers following the crude change July 26. The 41-43 w.w. grade sold over most of the week at 4.875 to 5 cents and was at 5 to 5.25 cents as the week closed. Demand was considerably better from the jobbing trade, most sellers reported and buying by exporters has served to take any distress goods off the market. Several of the trade reported difficulty in obtaining kerosene for prompt shipment.

The revision in Mid-Continent and Texas crude oils July 26, apparently had little effect on the heavy oil situation. Prices were generally unchanged over the week. Demand was quiet in most quarters, although several sellers reported finding a stronger tone to the market as the week closed.

Several said they believed fuel oil had "hit bottom" and that the 5-cent increase in west Texas crudes would help firm the market. A number of industrial concerns were in the market for their August requirements of fuel oils.

Distillate and gas oil prices were unchanged over the week: 32-36 ordinary dark gas oil sold at 2.50 cents, 32-36 dark zero at 2.625 cents and 32-36 straw zero at 2.625 to 2.75 cents. The 38-40 straw distillate continued to sell mostly at 3 cents.

The 28-30 fuel oil moved mostly at $0.80 to $0.85. Fuel oils of 24-26 and 22-26 gravity were at $0.625 to $0.675 all week. The 18-22 grade moved at $0.55 to $0.625 until July 25 and at $0.525 to $0.625 thereafter. Smackover treated fuel quotations continued mostly at $0.80 to $0.85.

Occasional local showers will occur throughout next week in Standard of Indiana territory; otherwise the weather will be mostly fair, says the official weather report of the Chicago weather bureau. Temperatures will be normal or above most of the week.

California Prices Reflect Strength

LOS ANGELES, July 28.—Export gasoline was strong during the week in California and tended towards greater strength at end of week as news arrived of the increase in posted prices of Mid-Continent light crudes and the continued strength of gasoline at the Gulf.

The trade considers that a proper quotation on U. S. Motor at close of week for export is 8.50 to 9 cents, with some doubt if much gasoline could be secured at the lower figure. Gasoline with an end point of 390 to 400 is held at 0.25 to 0.50 cent above U. S. Motor, and there is more of the 400 and 390 end point product moving than U. S. Motor.

Expectations of a raise in price of California light crudes of around 15 cents are widely held at the close of the week.

The tank car gasoline market is showing some added strength, although there is no actual change in quotations carried. Plenty of gasoline was available last week for shipment to points without the state at 9 cents, and there is still a few cars available, but the ruling price this week for that trade is 9.50 to 10 cents.

Gasoline in tank cars for shipment to points within 200 to 300 miles commands a price ranging from 10 to 12.50 cents. Most of the refiners regardless of size are holding firm their price on shipments to points nearby.

There is also some change for the better in the natural gasoline situation. Production is heavy and for a time much spot stuff was on the market. There is less spot goods on the market this week and for that reason the prices are tighter.

Natural gasoline in small lots can still be bought at 6 to 6.50 cents, but a larger quantity would cost around 7 cents. A few long time contracts were closed during the week at a rate that figures about 6.50 cents net to the manufacturer, although it formerly had been the custom to make contracts at about 10.50 cents under the service station price without tax, which nets the manufacturer 7 cents.

All contracts have "stops" at 5 cents, protecting the manufacturer if the service station price of gasoline is radically reduced.

Fuel oil continues weak. The best that can be said of it is that it is no worse than usual. Tank car fuel is moving at 65 to 70 cents, while export cargoes can be purchased at 70 to 75 cents. The movement of fuel is fairly good—in fact, stocks are not showing any alarming increase.

The retail gasoline price situation has shown no improvement.

The demoralized price situation is playing havoc with stations selling

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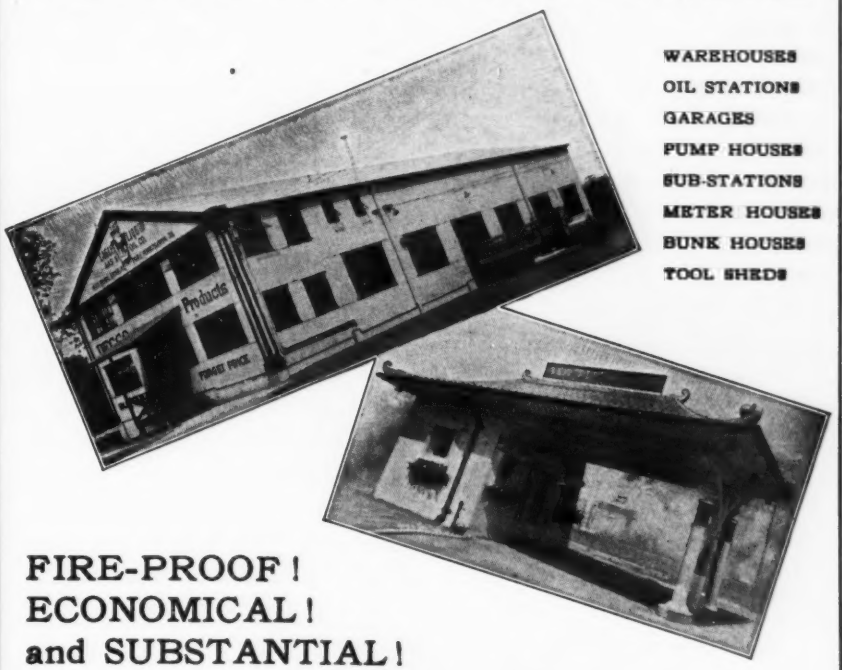

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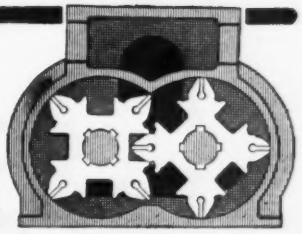

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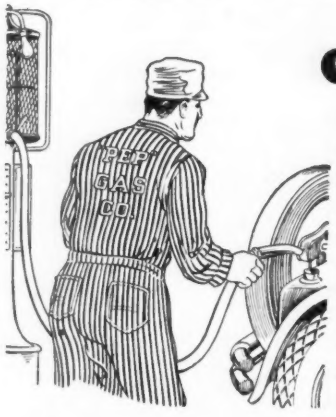

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at the established service station price, especially stations owned and operated by major companies, and those company owned stations that have been leased to Independent operators. In some localities, such stations have lost a very large portion of their business. The signing of long time wide differential contracts during the price war is responsible for the bad situation. Many contracts are for two to three years with margins as great as 6 to 8 cents under the service station price.

There is no change in the quotations on kerosene.

Wholesale Prices Rise Toward 1926 Level

WASHINGTON, July 28.—Business in the week ended July 21, as measured by the volume of checks passing through the banks for payment, was larger than a year ago, but somewhat smaller than in the preceding week, according to the Department of Commerce. Operations in steel plants, although showing smaller activity than in the preceding week, were on a higher level than a year ago. The value of new building contracts awarded during the week was smaller than in either the preceding week or the corresponding period of 1927.

The index of wholesale prices showed a further gain over the previous week, practically reaching the 1926 average level. Prices for cotton, however, averaged lower than in the previous week, but were higher than a year ago, while iron and steel prices, for the first time in weeks, showed a gain over the previous week. Copper prices showed practically no change from the previous week but were still substantially higher than a year ago.

Loans and discounts of Federal reserve member banks were higher than a year ago but showed a recession from the preceding week. Loans to brokers and dealers by member banks in New York City showed a further decline but were still considerably higher than a year ago. Stock prices averaged lower than in the preceding week but were higher than in the corresponding period of last year.

Interest rates on time money again showed no change from the previous week but were higher than in the same week of a year ago. Bond prices, reflecting higher interest rates, averaged lower than in either the preceding week or the same week of last year. Interest rates on call loans averaged lower than in the previous week but were considerably higher than a year ago.

Business failures were less numerous than in the preceding week but were slightly larger than in the corresponding week of 1927.

OIL STOCKS AND FINANCES

National Petroleum News

Improvement Shown in Earnings Of Majority of Companies

CLEVELAND, July 30

EARNINGS of six oil companies of nine whose reports are available, were better in the second quarter of this year than in the second quarter of 1927. Earnings of seven of 10 companies were better in the first half of this year than in the first half of last year.

Companies which have shown improvement in the second quarter are the Louisiana Oil Refining Corp., Marland Oil Co., Pierce Petroleum Corp., Transcontinental Oil Co., Warner-Quinlan Co., and White Eagle Oil & Refining Co. These companies and the Sun Oil Co. showed improvement for the first half of this year also.

Earnings of the Marland Oil Co. showed perhaps the greatest improvement although the company was still operating at a loss. Its deficit after reserves in the second quarter of 1928 was $41,159, compared with a deficit of $2,155,500 in the second quarter of 1927. Its loss for the half year was $1,918,151, compared with a loss of $1,926,808 in the first half of 1927.

Pierce netted $401,723 in the second quarter and $367,457 in the first half, its first quarter operations having been carried on at a loss. In the first half of 1927 Pierce lost $72,939.

Sun Oil Co.'s profits for the first half of 1928 were more than four times its profits in the corresponding time of 1927, the net having been $2,513,929 and $603,596, respectively. However, its net gain was slightly under that of Marland.

Barnsdall Oil Corp. June 30 showed net working capital of $5,625,194, compared with $2,692,125 Dec. 31, 1927.

Transcontinental's statement for the second quarter includes certain income for the first quarter which had been carried as deferred income. This money was released under a decision of the Texas Supreme court which held constitutional the relinquishment act of 1919 under which Transcontinental acquired its A. G. Yates A lease from the land owner.

Warner-Quinlan gross sales in the first half of 1928 were 35 per cent larger than gross sales in the first half of 1927. Gross income this year was $5,916,555. Gasoline sales were 30 per cent larger. The company's crude production was 60 per cent larger than its production last year.

Warner-Quinlan is planning to increase its refining capacity to balance its marketing outlets. It is planned to pay for all improvements out of earnings and not do any new financing.

American Republics Corp. which has several equipment subsidiaries as well as oil subsidiaries lost $88,361 on the half year's operations. In the first half of 1927 the company netted $132,117. In the second quarter of 1928 American Republics netted $163,368 but lost $202,339 on the first half of 1927.

In the 12 months ended June 30 Cities Service Co. earned $22,487,255 before reserves and income tax, compared with $18,962,740 in the 12 months ended June 30, 1927.

Earnings of nine companies in the second quarters of 1928 and 1927 were:

Second Quarters	1928	1927
Barnsdall Corp.	$617,866	$687,084
Houston	388,980	657,123
Independent Oil & Gas	112,517	324,604
Louisiana Oil Refg.	384,214	145,038
Marland Oil	*41,159	*2,155,500
Pierce Petroleum	401,723	56,556
Transcontinental Oil	†493,612	*75,093
Warner-Quinlan	505,411	223,300
White Eagle Oil	‡501,712	‡379,962

*Loss. †Before income tax. ‡Before depreciation and depletion.

Earnings of 10 companies in the first halves of 1928 and 1927 were:

Half Year	1928	1927
Barnsdall Corp.	$1,003,326	$1,642,683
Houston Oil	726,843	1,338,018
Independent Oil & Gas	*306,881	959,134
Lousiana Oil Refg.	529,252	261,563
Marland Oil	*1,918,151	*1,926,808
Pierce Petroleum	367,457	*72,939
Sun Oil	2,513,929	603,596
Transcontinental Oil	†422,966	†140,687
Warner-Quinlan	646,662	347,813
White Eagle Oil	††1,143,788	††1,090,695

*Loss. †Before income tax. ‡Before depreciation and depletion.

STANDARD OIL ISSUES

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Richfield Merger Progressing

NEW YORK, July 28.—More than 112,000 Pan American Western Petroleum Co. B shares have been exchanged for Richfield Oil Co. common since the latter company made its exchange offer, according to Bond, Goodwin & Tucker, fiscal agents of Richfield company. Hemphill, Noyes & Co., Blair & Co. and Newberger, Parsons & Co., together with Bond, Goodwin & Tucker will continue to receive deposits of Pan American B stock until Sept. 11, when the Richfield offer expires.

About 350,000 shares of Pan American were outstanding.

Union of Delaware Nears Dissolution

PHILADELPHIA, July 28.—Union Oil Co. of Delaware directors, acting as trustees in dissolution, report that of 1,389,417 shares that were outstanding May 19, 1927, 1,274,365 have been surrendered under options offered the holders. One option is to receive 77 cents a share and the other is to receive 74 cents a share together with non-transferable receipt participating in any future distributions.

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 28 Sales	First	High	Low	Last	Change
37⅞	27⅝	38	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	July 31, 28	2,800	30⅜	32	30⅛	32	+ 1⅜
82½	35½	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	6,600	61⅞	64½	61⅜	61⅜	+ ½
50¼	35	46⅞	37½	$56,000,000	$ 25	Associated Oil	50cQ	June 30, 28	.....	.....	.....	.....	.....	.....
131⅜	104	148½	95¾	50,000,000	100	Atlantic Refining	$1Q	June 15, 28	21,600	140¾	*148½	140¼	148½	+ 8
119	115½	118¼	115	20,000,000	100	do pfd	$1.75Q	Aug. 1, 28	.....	.....	.....	.....	.....	.....
35½	20¾	26⅞	20⅛	28,725,675	25	Barndsdall Corp. A	.....	Feb. 6, 28	10,600	20¼	23½	†20⅛	20⅛	+ ⅛
32½	20½	27¼	22	799,775	25	do B	.....	Feb. 6, 28	100	20½	20½	20½	20½	— 1
.....	.....	.....	.....	.....	.....	Beacon Oil	.....	.....	.....	.....	.....	.....	.....	.....
32⅞	20	32¾	24	$1,524,150	25	California Petroleum	25cQ	July 2, 28	100	30	30	30	30	0
96¾	65	94⅞	70	20,785,400	100	General Asphalt	.....	.....	6,800	70½	75	70½	74	+ 3½
144⅞	107¼	141½	111	6,792,200	100	do pfd	$1.25Q	June 1, 28	400	112	116	111⅜	116	+ 3
175¾	60½	167	127	25,000,000	100	Houston Oil	.....	.....	6,200	132½	133½	127⅞	133	+ 2¾
32¾	17⅜	31⅞	21¾	(sh) 500,000	N.P.	Independent Oil & Gas	25cQ	July 31, 28	7,400	24½	24½	23⅝	23⅝	— ⅞
12⅛	7⅜	39⅜	9	$3,280,340	$10	Indian Refining	.....	Dec. 15, 20	37,100	30	32¾	30	30⅝	+ ⅝
12	7¼	37¼	8½	4,550,110	10	do ctfs	.....	.....	21,300	28⅜	30¼	28	28⅜	— ¼
112	99	230	101	2,296,400	100	do pfd	.....	Dec. 15, 21	1,000	205¼	210⅛	205¼	210	+ 4
37¾	20½	39½	27½	(sh) 3,992,122	N.P.	Lago Oil & Transport	75cQ	May 1, 28	500	30½	32	30½	32	+ 1¼
18⅛	10	19¾	9¾	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	17,300	13⅝	14⅞	13¼	14½	+ 1
97	85¼	101	78	$4,000,000	$100	do pfd	$1¾Q	May 15, 28	20	95	85	†78	85	+ 4⅝
22¾	12	25½	12½	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	1,700	16⅛	17¾	16	17⅝	+ 1⅛
58½	31	44½	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	19,500	34½	36⅜	34½	35⅞	+ 1⅜
320	200	360	250	$45,942,800	$100	Mexican Petroleum	$3Q	July 20, 28	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	12,000,000	100	do pfd	$2Q	July 20, 28	.....	.....	.....	.....	.....	.....
9¼	3	39	4⅝	sh) 945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	37,600	26⅛	27	25	26¼	+ ¼
39¾	25½	33¼	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 27	6,200	28	29½	27½	29¼	+ 1⅜
105	97	115⅛	103¼	$6,718,000	$100	do pfd	$1.75Q	June 1, 28	.....	.....	.....	.....	.....	.....
3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	9,300	4½	4¾	4¼	4⅜	— ⅛
2¾	1⅜	5⅞	1½	5,501,370	10	do ctfs	.....	.....	1,800	3¼	3¼	3	3¼	0
1⅞	1	2¼	1¼	(sh) 3,500,000	N.P.	Pacific Oil	.....	.....	4,200	1⅜	1⅜	1¼	1¼	— ⅛
65⅞	40¼	53¾	38¼	$48,807,400	$ 50	Pan American P. & T.	.....	Oct. 20, 27	3,600	40¾	41⅞	40¼	41⅞	+ ⅞
66⅜	40½	54⅝	37¾	121,097,900	50	do B	.....	Oct. 20, 27	15,600	41½	43⅜	41⅜	43	+ 1½
37⅞	16¾	28⅜	15½	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	5,000	16	16⅜	15½	16¼	+ ⅛
18⅜	8	21⅜	11⅛	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	900	14⅞	15⅜	14⅞	15½	0
83	54	106¼	70	$2,935,200	$100	do pfd	.....	July 2, 23	.....	.....	.....	.....	.....	.....
60¼	36¼	44⅝	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	July 2, 28	12,900	37¼	38⅝	36½	38⅝	+ 1⅜
1⅜	½	4¼	½	$29,622,925	$ 25	Pierce Oil Corp.	.....	.....	6,700	2¼	2½	2	2½	+ ¼
24	13½	30½	16¼	15,000,000	100	do pfd	.....	Feb. 1, 22	.....	.....	.....	.....	.....	.....
5½	2½	6⅝	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	6,600	3⅞	4½	3⅞	4½	+ ⅝
33⅞	16⅝	26⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	5,100	24⅛	25⅞	24	24¾	+ ¾
50	36⅞	46⅞	41	2,845,350	50	do pfd	.....	May 1, 25	130	43¾	43¾	42	42	+ 1¾
33½	25	27½	19	75,959,250	25	Pure Oil Co.	12½cQ	June 1, 28	9,300	22	22½	21⅜	21½	+ ½
115½	111⅛	115	108	13,000,000	100	do 8% pfd	$2Q	July 2, 28	70	112⅝	113¼	112	112½	— ⅛
28⅝	25¼	50¾	24	$29,224,894	$25	Richfield Oil	25cQ	May 1, 28	16,300	46¼	47	45¼	46⅜	+ ⅛
54½	44¼	56¾	44⅜	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	$1.343	Jan. 28, 28	800	54⅜	54⅜	53½	54	— ⅛
47⅞	41⅜	51	40⅝	(sh) 77,590	£2	Shell Transport & T.	$1.455	July 23, 28	.....	.....	.....	.....	.....	.....
31¾	24⅜	31	23¼	(sh) 10,000,000	N.P.	Shell Union Oil	35cQ	June 30, 28	9,200	26½	26¾	26¼	26½	+ ⅛
26⅜	14¼	24¼	18½	$7,208,080	$ 10	Simms Petroleum	.....	Apr. 1, 27	3,000	21	21⅜	20¼	20⅝	+ ⅝
22⅝	15	30½	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	May 31, 24	52,900	24⅛	25½	24⅞	25¼	+ 1
104½	97	109½	102½	$16,604,600	$100	do pfd	$2Q	May 15, 28	100	109	109	109	109	— ¼
37⅝	24⅛	34	25	27,396,590	25	Skelly Oil Co.	50cQ	June 15, 28	11,300	29⅜	31⅜	29⅜	31⅜	+ 1½
60¾	50¾	63⅞	53	(sh) 13,016,434	N.P.	S. O. California	62½cQ	June 15, 28	5,200	56⅝	57⅞	56½	57¾	+ ¾
41⅜	35¼	49	37¾	$607,910,525	$ 25	S. O. New Jersey	‡25cQ	June 15, 28	34,500	43⅛	44	43	44	+ 1
34½	29¾	41½	28¾	427,973,275	25	S. O. New York	40cQ	June 15, 28	47,700	33⅜	34⅜	33⅜	34	+ ⅝
34½	30	49	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	June 15, 28	10,400	44¾	48	44½	47	+ 4
101⅝	99	109¾	100	$5,000,000	$100	do pfd	$1.50Q	June 1, 28	.....	.....	.....	.....	.....	.....
6½	3⅛	9½	2⅛	(sh) 1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	15,300	7⅛	7⅛	6¾	6⅞	+ ⅛
58	45	66⅝	50	$180,480,550	$ 25	The Texas Corp.	75cQ	July 2, 28	33,600	59⅜	60½	59	60½	+ 1¼
18⅞	12	17½	12½	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	15,800	14⅛	15⅛	14⅛	14⅝	+ ⅝
29¼	19	27⅛	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	June 30, 28	1,500	23	24	23	24	+ 1
90½	85	94½	87	$20,705,200	$100	do 5½% pfd	$1.25Q	May 15, 28	400	.....	87	86¾	87	— ¾
19¼	15¾	20⅝	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	36,400	17	18⅛	17	18⅛	+ 1⅛
90¾	85	90	82¼	$72,745,900	$100	do pfd	$1.50Q	July 2, 28	1,400	85½	86½	85	86½	+ 1⅛
10⅜	3⅜	10⅜	7	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	29,700	7⅝	8¼	7⅝	7⅞	+ ⅛
56½	39⅜	57	42¾	$40,791,225	$ 25	Union Oil of California	50cQ	May 10, 28	4,400	50½	51½	50	50¾	— ⅛
127½	94	128⅛	115½	30,844,000	100	Union Tank Car Co.	$1.25Q	June 1, 28	.....	.....	.....	.....	.....	.....
34½	24½	38⅜	26	(sh) 310,956	N.P.	Warner Quinlan	50cQ	July 2, 28	7,700	37½	38⅜	36⅞	37⅞	+ ⅝
27½	20	26	20¾	(sh) 490,000	N.P.	White Eagle Oil & Refining	25cQ	July 20, 28	2,500	23	24⅜	23	23¾	+ ¾

•New High †New Low ‡Also extras s-Stock Total Sales 626,120

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 27 Sales	First	High	Low	Last	Change
....	....	4	2½	N.P.	Ark. Nat. Gas (new)	3,605	2⅞	3	2¾	2⅞	0
....	....	7½	6¾	N.P.	do pfd	1,966	7¼	7¼	7⅛	7⅛	— ⅛
98¾	80⅛	114½	90¾	100	Columbia Gas	.....	.....	.....	.....	.....	.....
107⅞	100	108½	108	100	do pfd	.....	.....	.....	.....	.....	.....
15	7½	10	7	10	Devonian Oil	100	7	7	7	7	— ¾
....	....	15	9¾	10	Dixie Gas & Util.	.....	.....	.....	.....	.....	.....
.....	.....	95	85	100	do pfd	.....	.....	.....	.....	.....	.....
117½	115	116	115	100	Duquesne Light pfd.	.....	.....	.....	.....	.....	.....
....	....	85	80½	100	Fayette County Gas.	.....	.....	.....	.....	.....	.....
12¼	6	22	12	N.P.	Houston Gulf Gas	.....	.....	.....	.....	.....	.....
59¼	37¼	5•	48⅝	$ 25	Lone Star Gas	1,518	52⅜	53	52½	52⅞	— ⅛
....	....	36½	36	25	Petroleum Exploration	.....	.....	.....	.....	.....	.....
3⅛	3	4	3¼	5	Pittsburgh Oil & Gas	1,100	3¼	3¼	3¼	3¼	0
8	5½	7¼	6	10	Salt Creek Cons.	.....	.....	.....	.....	.....	.....
26½	17	22	16¾	10	Tidal Osage	.....	.....	.....	.....	.....	.....
43	33	33⅝	30½	N.P.	Waverly Oil Wks. A	40	33	33	33	33	0
....	....	19	17½	$ 25	Wiser Oil	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 27 Sales	First	High	Low	Last	Change
....	....	10¼	9	10	Ark. Nat. Gas (old)	.....	.....	.....	.....	.....	.....
95	88	132	120	25	Gulf Oil	.....	.....	.....	.....	.....	.....
.....	.....	115	115	....	Houston Gulf Gas pfd.	.....	.....	.....	.....	.....	.....
10¾	5½	9	5½	25	Leonard Oil & Dev.	.....	.....	.....	.....	.....	.....
2.70	.30	1.00	.50	10	Omar Oil & Gas	.....	.....	.....	.....	.....	.....
....	....	.40	.20	....	Phoenix Oil	1,200	.35	*.40	.35	.40	+ .20
2¼	1¾	....	....	5	Pittsburgh Oil Dev.	.....	.....	.....	.....	.....	.....
31	19	22	16¾	5	Plymouth Oil	50	19	19	19	19	0
6	5	4¾	4	5	States Oil	.....	.....	.....	.....	.....	.....
3⅛	1½	4½	2¼	1	Texon Oil & Land	.....	.....	.....	.....	.....	.....
23¾	18	18	15	10	Tidal Osage Non-vgt.	.....	.....	.....	.....	.....	.....

•New High †New Low x Ex Dividend

Oil Dividend

	Amount	Payable	Stock of Record
S. O. Ohio pfd. q	$1.75	Sept. 1.	Aug. 10

Cleveland Stock Market

July 27	Par Value	Bid	Asked	Last Sale
Canfield	100	110	....	115
do pfd	100	100	....	100
Fred G. Clark	10	3	5	3½
National Refining	25	....	36	35
do pfd	100	130	135	132½
Paragon Refining Co.	25	16	16¼	16
do pfd	100	....	130	125
do ct'fs of dep.	...	15½	17	16

Graham-Loftus Oil Corp. Formed

LOS ANGELES, July 27.—Graham-Loftus Oil Corp. filed incorporation papers in Sacramento this week. This corporation has an authorized capital stock of $1,000,000 and the directors include William Loftus, Whittier; S. C. Graham, Los Angeles; C. C. Teague, Santa Paula; C. C. Perkins, Camarillo, and I. M. Snider, Los Angeles.

Gives Fair Discussion Of Home Oil Heating

CLEVELAND, July 28.—A clear presentation of the value of oil heating of homes in comparison with coal heating is given in a booklet entitled, "Does It Pay To Install an Oil Heater?" put out by the Oil Heating Institute, 420 Madison avenue, New York.

The booklet discusses the installation costs of oil heating systems, does not attempt to sell the idea that oil heating is necessarily cheaper than coal, and in general discusses the matter in fair and truthful fashion. It points out that character, experience and financial responsibility of manufacturer and dealer are to be considered when deciding on a burner for a home.

Membership in the Oil Heating Institute is made up 17 established burner manufacturers and the following refining companies: Barnsdall Corp., Tulsa; Cities Service Refining Co., Boston; Crew Levick Co., Philadelphia; Empire Refineries Inc., Tulsa; Continental Oil Co., Denver; Gulf Refining Co., Pittsburgh; Pan American Petroleum & Transport Co., New York; Mexican Petroleum Corp., New York; Pure Oil Co., Chicago; Shaffer Oil & Refining Co., Chicago; Standard Oil Co. of New Jersey, New York; Standard Oil Co. of New York, New York; Sun Oil Co., Philadelphia; Tide Water Oil Co., New York; Associated Oil Co., San Francisco.

Help Wanted "Ad" Held To Be Misleading

CLEVELAND, July 28.—The National Better Business Bureau has issued a warning concerning classified advertisements placed in newspapers by a concern styling itself the Foreign Commerce Co., box 337, Fort Worth, Texas.

The advertisement reads in part: "Help Wanted—Male. MEN wanting work with large oil companies in foreign countries; experience not essential, etc."

The company is selling a book entitled "Booklet of Information About Foreign Travel and Work." The bureau says the company has no employment to offer and its use of a "help wanted" advertisement is unwarranted.

WAINWRIGHT, Alta.—A 360-barrel well is said to have been brought in recently in the Wainwright field by the Wainwells Oil Co. That company's No. 2 will be drilled shortly, according to reports.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

TEN YEARS EXPERIENCE in all branches, including refining, marketing, compounding, grease making, etc. Capacity not limited, not afraid to work. Good reasons for desiring change. Will go anywhere. Address Box 128.

DO YOU NEED A MAN OF EXCEPTIONAL ABILITY in your organization? Former executive of large oil company, in charge of finances, accounts, credits, etc. certified accountant, seeks connection with oil company in any capacity. Experienced in all phases of oil business. Best of references. Address Box 139.

SALES MANAGER, 20 years experience. Capable taking complete charge sales and operation bulk plant. Familiar with sales promotion branded gasoline motor oil operation service stations; industrial lubrication. Carlot sales gasoline, lubricating and fuel oils to jobbing trade, also asphalt and grease. Self starter, not afraid of work. Available August 15th. Box 143.

DESIRES NEW CONNECTION AS SUPERINTENDENT OR MANAGER. Young married man 39 years of age, college graduate, at present employed, twelve years experience with all modern refining methods—continuous, high pressure, and vacuum distillation, batch and continuous treating. Familiar with manufacturing and selling of all industrial oils and greases. Address Box 140.

Situations Open

EFFICIENCY MAN WANTED, with practical experience in production, refining oil, to be personal representative of president of a large oil company. Give experience and reference. Address Box 144.

Business Opportunities

SALESMAN CALLING UPON THE OIL TRADE: Establish yourself in an independent paying business. A proven product that is new with absolutely no competition where a demonstration means a sale and repeats many times a year. Exclusive distributors territory to right parties. C. E. Flager, 1143 N. Main, Lima, Ohio.

WANT TO BUY ESTABLISHED GASOLINE AND OIL JOBBING BUSINESS. Give full particulars regarding yearly volume of business, storage capacity, equipment and siding facilities. Would consider purchase interest in company with services. Address Box 142.

REFINERY CONNECTION WANTED

Chemist with several years refinery experience would like to make arrangements with refinery or individual for development of vapor phase process for treating gasoline. The resulting product passes Doctor, corrosion, gum, color, odor and light stability tests.

Address Box 136

MAKE THIS OFFICE TULSA HEADQUARTERS

Will buy petroleum products for your account Small commission.

Wire or Write for Details

DALE W. MOORE

532-533 Mayo Bldg., Tulsa, Okla.
Telephones: 3-4177 and 3-4178.
L. D. 136

Advertisers having box numbers should be addressed in care of National Petroleum News, 1213 W. 3rd St., Cleveland, Ohio, unless otherwise specified.

Professional

L. G. Huntley **J. R. Wylie, Jr.**
Shirley L. Mason

HUNTLEY & HUNTLEY
PETROLEUM GEOLOGISTS AND ENGINEERS

Frick Building **PITTSBURGH, PA.**

For Sale

BULK STATION, REAL ESTATE FOR SALE including two stations, trucks and all other equipment used in distributing of gasoline, kerosene, motor oils and greases. Doing 350,000 gallons gasoline, 50,000 gallons kerosene and 150 barrels motor oils per year. Located in western part of Ohio. Good reason for selling. Address Box 145.

LEASE 140 ACRES, forty wells producing Pennsylvania crude, both second and third sand. String of drilling tools included. One mile river frontage on Allegheny river. Address George Smith, 516 Eleventh St., Franklin, Pa.

FORD TRUCK WITH 350 GALLON three compartment tank $100.00. Reo truck with 460 gallon four compartment tanks, new tires and rebuilt differential $300.00. 2 ton International with three compartment 725 gallon tank $1000.00. Diamond Oil Company, Inc., 299 Maple St., Marlboro, Mass.

FOR SALE:—Wholesale and retail oil business, including 2-1/3 acres land, six room residence, warehouses, forty-five storage tanks with capacity for storing several carloads gasoline and oils; all tanks connected with pumps and underground piping; complete with filling station, driveways, trucks, and all necessary equipment. Located on road to new airport. For a man who knows the business and will hustle this offers real opportunity. For sale by present owner. Price quite reasonable. Address F. H. Farwell, Orange, Texas.

THREE USED SHARPLES NO. 6 SUPER CENTRIFUGES FOR SALE

Guaranteed in good running condition. Built in 1922, and were used for clarifying of oil and separating of oil emulsions.

Address Box 96

Miscellaneous

WHAT IT COSTS

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities."

"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.

"Positions Wanted"—5 cents a word. Minimum charge $1.00.

Advertisements set in special type or with border—$4.00 per column inch.

Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 27 Sales	First	High	Low	Last	Change
21⅝	17⅜	22⅝	17	£ 4,126,460	£ 1	Anglo-American Oil	24.4c	June 6, 28	2,800	17½	18¼	17¼	18	+ ¾
21½	17⅝	20½	16⅜	.....	£ 1	do cts. non-voting	.....	.....	400	16⅜	17⅜	†16⅜	16⅝	+ ¼
3⅜	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	200	2½	2½	2½	2½	0
6½	2½	9¾	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
69	50	56	49	1,000,000	25	Borne Scrymser	‡$1S.A.	Apr. 16, 28	400	48½	50½	48	48	— 1
60	45	76	58	10,000,000	50	Buckeye Pipe Line	‡$1Q	June 15, 28	200	63⅞	63⅞	63½	63⅞	+ ⅛
126	76½	161	117¼	3,000,000	25	Chesebrough Mfg	$1Q	June 30, 28	.....	.....	.....	.....	.....	.....
22⅝	16¼	23	16	36,123,350	10	Continental Oil	.....	Dec. 15, 27	7,000	16¼	16½	16	16⅜	+ ⅛
137	89	114	88	3,000,000	100	Cumberland Pipe Line	‡$2Q	June 15, 28	50	99	99	99	99	+ ¼
68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Aug. 1, 28	.....	.....	.....	.....	.....	.....
13½	3½	13	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	100	10½	10½	10½	10½	0
59¾	23	86	27	4,000,000	100	do new pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
60⅛	35⅛	89¾	35	2,000,000	100	do old pfd	.....	June 30, 26	110	75	76	75	76	— 5
68½	54	84¾	60	73,685,700	25	Humble Oil & Refining	‡30cQ	July 1, 28	9,600	77⅞	81¼	77½	80⅝	+ 3⅝
182	123¾	245	176½	20,000,000	100	Illinois Pipe Line	$6S.A.	June 15, 28	.....	.....	.....	.....	.....	.....
64¾	37¾	71⅞	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	‡25cQ	June 1, 28	1,000	65¾	66½	65½	66	+ ½
94½	61	89½	74⅞	$5,000,000	$ 50	Indiana Pipe Line	‡$1Q	June 15, 28	100	82	82	82	82	0
39	28¼	45¼	35	(sh) 7,123,544	N.P	International Petroleum	25c	June 30, 28	3,000	38¾	39¼	38¼	38⅞	+ ⅛
24	13¼	32⅜	19⅜	$6,363,350	12.50	National Transit Co	‡25cQ	June 15, 28	300	21¼	21¼	21⅜	21⅜	+ ⅛
44⅛	31¼	59⅛	37½	5,000,000	100	New York Transit	.....	July 15, 26	.....	.....	.....	.....	.....	.....
100	70	125	94	4,000,000	100	Northern Pipe Line	$3S.A.	July 2, 28	250	111	112	111	111	— 1½
67⅞	52	68¼	58	60,000,000	25	Ohio Oil Co	‡50cQ	June 15, 28	1,000	62¼	63	62¼	62½	+ ¼
39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	May 31, 28	100	40½	40½	40	40	0
55½	45⅝	56	47½	60,479,600	25	Prairie Oil & Gas	.....	Aug. 31, 27	6,500	48	48¾	47⅝	48¾	+ 1
190	132	223	184	81,000,000	100	Prairie Pipe Line	$3.50Q	July 31, 28	750	207½	207¾	201	201	— 6½
201½	175½	186	167	4,000,000	100	Solar Refining	$5S.A.	June 20, 28	.....	.....	.....	.....	.....	.....
47¼	15½	35⅞	12	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	100	12	12	†12	12	0
41½	35	53	36¾	20,000,000	25	South Penn Oil	50cQ	Mar. 31, 28	600	44	44½	43⅞	44½	+ ½
83	55½	100¾	70	3,500,000	100	South West Pa. Pipe Lines	‡$1Q	July 2, 28	.....	.....	.....	.....	.....	.....
81⅛	64⅜	83⅝	70⅞	230,788,513	25	S. O. Indiana	‡62½cQ	June 15, 28	10,400	74¼	76⅛	73¾	75½	+ 1½
70⅞	14⅜	27⅜	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	2,400	21¾	22¾	21¾	22½	+ ⅝
130	111½	136⅛	122¼	17,103,011	25	S. O. Kentucky	$1Q	June 30, 28	3,800	127⅛	131⅜	127¼	128	+ 1¼
49½	40	45⅞	39⅜	4,601,100	25	S. O. Nebraska	62cQ	June 20, 28	400	40⅛	40⅞	40⅛	40⅝	— ⅜
87½	72	79½	71	14,000,000	25	S. O. Ohio	62½cQ	Apr. 2, 28	200	73½	73¾	73½	73½	+ ½
122	117¼	125	117	7,000,000	100	do pfd	$1.75Q	June 1, 28	80	120¼	120¼	120¼	120¼	0
21	14½	26	16	30,844,000	25	Swan Finch Co	30cQ	June 30, 28	.....	.....	.....	K	.....	.....
.....	.....	87⅛	72	124,941,600	25	Vacuum Oil	75cQ	June 20, 28	3,000	75⅜	76⅜	75⅛	76⅛	+ 1

•New high †New low xEx dividend ‡Also extras.

New York Curb Bonds

Week Ending July 27

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	99	99	99	—1
Cities Service 5s '66	96	95⅝	95¾	— ¼
Cities Service 6s '66	103¾	103¾	103¾	0
Cities Service G 5½s '42	93⅞	93⅞	93⅞	—⅛
Cont. Oil 5¼s '37	96⅛	96⅛	96⅛	0
Empire O & R 5½s '42	93⅛	93	93	— ¼
Galena Oil 7s '30	99½	99	99	0
Gulf Oil 5s '37	100	100	100	+ ⅛
Gulf Oil 5s '47	100¼	100	100	0
Independent Oil 6s '39	101	100½	100¾	+ ¼
Richfield Oil 6s '41	131	131	131	—5
Richfield Oil 5½s '31	100⅜	100	100	— ½
Sun Oil 5½s '39	101	100½	100½	— ½
Trans. Cont. Oil 7s '30	105½	105½	105½	0
Valvoline Oil 7s '37	106	106	106	+ ¾
Warner Quinlan 6s '42	110	106⅛	110	+1½

New York Bonds

Week Ending July 27

	High	Low	Last	Ch'ge
Assoc. Oil Gold 6s	102½	102¼	102¼	— ½
Atlantic Refg. deb. 5s	101¼	100¾	100¾	0
Barnsdall Corp. 6s	100⅛	99½	100	+ ¼
Barnsdall Corp. 6s ex-war.	91¾	91½	91½	— ¼
Cal. Pet. 5s	99	98¼	99	0
Cal. Pet. 5½s	101⅞	101⅝	101⅞	+ ¼
General Asphalt 6s	108⅜	108	108	+1⅞
General Petroleum 5s	101½	101	101	— ¾
Humble Oil & Refg. 5½s	101⅞	101½	101⅞	— ⅛
Humble Oil & Refg. 5s	100⅜	100	100⅜	+ ⅜
Mid. Cont. Pet. 6½s	105¼	104½	105¼	+ ¼
Pan Amer. P & T 7s	104½	104½	104½	0
Pan Amer. P & T 6s	102¾	102½	102½	0
Pan Amer. P & T 6s	95½	94¾	95½	+ ¾
Phillips Pet. 5½s	92	91½	92	0
Prod. & Refg. 8s	111	110½	110¾	— ¼
Pure Oil 5½s	98¾	97¼	97¾	—1
Shell Union Oil 5s	96½	95½	96	+1
Sinclair Con. Oil 7s	102½	101½	102	+ ½
Sinclair Con. Oil 6½s	99¾	99	99	— ¾
Sinclair Con. Oil 6s D	98⅝	98⅜	98¾	+ ⅛
Sinclair Con. Crude 5½s	97⅝	97	97⅜	+ ⅛
Sinclair Pipeline 5s	93½	93	93	—2
Skelly Oil 5½s	93	92½	92½	+2
S. O. N. Y. 4½s	95	94½	95	+ ¼
S. O. N. J. deb. 5s	102½	102⅜	102½	+ ⅛
Union Oil of Calif. 6s A	109⅛	109⅛	109⅛	+ ⅞
Union Oil of Calif. 1st. 5s A	101¾	101¾	101¾	— ⅛
Union Oil of Calif. 5s C	98	97¾	97¾	—1½
White Eagle Oil 5½s	96⅜	96⅜	96⅜	— ⅜

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended July 27 Sales	First	High	Low	Last	Change
2⅞	.55	1½	.65	$ 5	Amer. Con. Oilfields	16,900	.70	.79	†.65	.70	— .09
7½	2¾	6⅝	3⅛	N.P.	Amer. Maracaibo	1,800	4¾	4¾	4½	4⅝	— ⅛
2¾	1	4	2¼	$ 10	Argo Oil	.....	.....	.....	.....	.....	.....
9¾	6¾	10¼	7⅜	10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	Beacon Oil	.....	.....	.....	.....	.....	.....
40	20½	40½	32¾	N.P.	British American	.....	.....	.....	.....	.....	.....
28¼	15½	23⅞	16¼	25c	Carib Syndicate	1,100	17⅜	17⅜	†16¼	16¼	— 1⅛
.....	.....	.....	.....	.....	do ctfs. of dep	.....	.....	.....	.....	.....	.....
58¾	40¼	71¼	54	$ 20	Cities Service	89,400	65¼	65¾	62¾	65¾	+ ⅜
95⅝	87	103½	94½	100	do pfd	1,500	99½	99½	99⅜	99⅜	— ⅛
8⅞	7⅜	9⅝	8⅞	10	do pfd. B	.....	.....	.....	.....	.....	.....
29¼	22½	34⅝	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1⅛	2¼	1⅞	1	Colombia Syndicate	1,500	1 1/16	1 1/16	1 1/16	1 1/16	0
9¾	6⅜	8⅛	6⅝	10	Consolidated Royal	.....	.....	.....	.....	.....	.....
14⅞	9½	17½	10	N.P.	Creole Syndicate	13,200	12¼	12¾	12⅛	12⅝	+ ¼
3	.50	3¼	.76	N.P.	Crown Central	500	1⅝	1½	1½	1½	— ⅛
12	4	30⅛	8⅛	N.P.	Darby Petroleum	600	19⅛	22	19⅛	20	+ ⅞
11½	4	13½	7⅞	....	do trust ctfs	.....	.....	.....	.....	.....	.....
2½	.74	22	1	N.P.	Derby Oil & Refining	.....	.....	.....	.....	.....	.....
16¾	4	12⅞	7½	N.P.	do pfd	3,200	11¼	*12⅞	11¼	12⅞	+ 1⅝
3¾	1	2	1	N.P.	Gibson Oil	.....	.....	.....	.....	.....	.....
2	.40	.53	.15	N.P.	Gilliland ctfs	.....	.....	.....	.....	.....	.....
118	86¼	148½	101⅜	$ 25	Gulf Oil Corp	1,600	124⅞	125½	122½	125	+ ½
2½	.80	7⅞	1	10	Intercontinent Pet	9,900	1⅜	1¼	1	1⅛	+ ⅛
2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	100	1⅝	1⅝	1⅝	1⅝	— ⅛
10⅛	5⅛	9⅜	5½	N.P.	Leonard Oil & Dev	500	6½	6½	6¼	6¼	0
27½	20	32⅜	20	N.P.	Lion Oil & Refg	800	28	28½	27⅞	28½	+ ½
59⅜	37	57	48⅝	$ 25	Lone Star Gas	1,300	52⅝	53	52⅛	52¾	— ⅛
2⅞	.80	1⅞	.86	1	Magdalena Synd	8,400	86	98	†.86	.91	0
21½	20⅞	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	36½	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
3	1½	40½	40½	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4	N.P.	Mexico-Ohio Oil	11,300	4½	4½	†4	4½	— ½
1½	1	1½	.76	$ 1	Mountain & Gulf	600	.82	.82	.81	.81	— 1
29¼	22⅜	28⅝	22⅜	10	Mountain Producers	2,300	22½	23	22½	22½	— ¼
5⅞	4⅝	5⅝	4⅜	5	New Bradford	300	5	5	5	5	0
6¼	4	5½	3⅝	10	New England Fuel	100	3⅝	3⅝	†3⅝	3⅝	— 1⅛
16	9¼	11⅜	7⅛	1	New Mex. & Ariz	1,200	7⅜	7⅝	†7⅛	7⅜	+ ¼
13⅞	9	15½	11½	25	New York Oil	.....	.....	.....	.....	.....	.....
12⅜	9½	13¼	10¾	N.P.	North Cent. Texas	200	12½	12⅝	12½	12⅝	+ ⅜
23⅞	21¼	....	....	....	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2½	N.P.	Pandem	500	2⅝	2⅝	2½	2½	— ⅛
12⅛	7	15⅝	8½	N.P.	Panapec Oil	11,600	13½	13½	12⅛	12¾	— ½
9	7⅝	15½	10⅜	$ 25	Paragon Refg	.....	.....	.....	.....	.....	.....
.37	.25	9	4	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
13½	5⅛	7¾	5⅛	10	Pennok Oil	100	5¾	5¾	5¾	5¾	+ ½
....	....	4⅛	3⅛	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14½	8	25	Red Bank Oil	100	9⅛	9⅛	9⅛	9⅛	— ⅞
15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	4,500	7⅞	8	7½	7⅞	0
28⅜	15	31½	22	$ 25	Richfield Oil pfd	600	23½	23⅝	23¼	23¼	0
7	4½	9⅞	4⅝	N.P.	Ryan Consolidated	100	5¾	5¾	5¾	5¾	+ ⅛
8	5¼	7¼	5¾	$ 10	Salt Creek Cons	100	6½	6½	6½	6½	+ ¼
35½	27¼	35	27	10	Salt Creek Prod	800	27¾	28	27⅛	27¾	0
7	1¼	3½	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
26½	17	22⅞	13	10	Tidal Osage	.....	.....	.....	.....	.....	.....
23¾	15	21¼	13⅛	10	do non-voting	300	18	18	18	18	— ¼
92	63½	87	75	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
23¼	7	50	18	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
7⅜	4¼	6⅝	4⅞	5	Venezuelan Petrol	2,200	5	5⅛	5	5	— ⅛
32⅜	19½	25	17½	N.P.	Wilcox Oil & Gas	400	18¼	18⅞	18¼	18¼	— ⅝
8	4⅜	8¼	5¾	$ 1	Woodley Petroleum	.....	.....	.....	.....	.....	.....
6	1¾	8⅜	2⅜	25	Y Oil & Gas (new)	1,400	6⅛	6½	6	6½	+ ⅜

•New High †New Low xEx Dividend

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